

The Role of Patient Participation in the Doctor Visit

Implications for adherence to diabetes care

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For patients, treatment of diabetes involves complex changes in basic behaviors and adherence to complicated regimens. Understanding the factors that enable patients to adhere to diabetes treatment is the first step to designing effective interventions. Researchers of diabetes care have postulated that increasing diabetic patients' participation in medical decision making during the doctor visit is likely to improve their adherence to self-care. However, a critical review of the impact of patient participation on diabetic patients' adherence to self-care is absent from the literature. We review the subject of patient participation in medical decision making and its effect on adherence to self-care for patients with diabetes. We introduce a model of the determinants of adherence to diabetes self-care that incorporates the effects of patient participation in medical decision making. In this model, we suggest three ways that patient participation can affect adherence to self-care: 1) it may have a direct effect; 2) it may affect adherence to self-care indirectly by affecting patients' understanding of their treatment regimen or the fit of their regimen with their lifestyle; and 3) perceived omissions of participation can affect adherence to self-care indirectly through an effect on patient satisfaction. Research is needed to identify more clearly which components of patient participation affect adherence to self-care and in what ways. Distinguishing patient and physician behaviors that contribute to the process of patient participation would provide a means to develop specific behavioral interventions.

Diabetes is a chronic condition with severe complications that cause a significant disease burden. Of the U.S. adult population, ~3.4% has diagnosed diabetes and an equal proportion has unrecognized diabetes (1-3). Convincing evidence shows that when patients carry out their self-care behaviors, they can improve blood sugar control (4-6). It has also been clearly demonstrated that improving metabolic control of diabetes reduces complications and hospitalizations (1,3,7). Despite this, most patients with diabetes do not adhere to at least some aspect of their treatment regimens (8-14). For patients, treatment of diabetes involves complex changes in basic behaviors and adherence to complicated medication regimens that require regular mon-

itoring (11,12). Understanding the factors that enable patients to adhere to diabetes treatment is the first step to designing effective interventions.

The communication style of the physician is a factor that may influence patients' adherence and would be a feasible target for useful interventions (5,15-20). Because most diabetes care is carried out by the patient, the provider's role is to both recommend an effective treatment plan that the patient is able to follow and to motivate and educate the patient (16,21). Although much of diabetes education is conducted by nurses and health educators, the relationship patients have with their physicians may be a unique setting in which patients develop a commitment to follow their

treatment plans (22,23). Therefore, both clinicians and policy makers would benefit from understanding how doctors can best interact with diabetic patients to help patients take better care of themselves.

Researchers of diabetes care have postulated that increasing diabetic patients' participation in medical decision making during the doctor visit is likely to improve their adherence to self-care (19,24-26). Some evidence suggests that this is so (16,19,24,25,27-29). However, a critical review of the impact of patient participation in medical decision making on diabetic patients' adherence to self-care is absent from the literature. Medical decision making is a complex process. If patient participation is to be advocated, we need to understand what it means for patients to participate in making these decisions and to be clear about which aspects will affect adherence. We review the subject of patient participation in medical decision making and its effect on adherence to self-care for patients with diabetes. First, we will introduce a model of the determinants of adherence to diabetes self-care that incorporates the effects of patient participation in medical decision making (see Fig. 1). In this model, we suggest three ways that patient participation can affect adherence to self-care. First, it may influence patients' adherence directly. Second, it may affect adherence indirectly by affecting the appropriateness of the patients' regimen and the patients' understanding of their regimen. Third, patient participation in decision making may affect adherence indirectly by its effect on patients' satisfaction with the doctor visit. This model concisely represents a synthesis of information from a comprehensive literature review.

Once we have introduced the model, we will discuss each of its components in more detail. Using our model as a guide, we will review the literature upon which our model is based: 1) research of adherence to self-care for patients in general and then specifically for patients with diabetes; and 2) research regarding patient participation in medical decision making,

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Received for publication 6 October 1995 and accepted in revised form 16 May 1996.

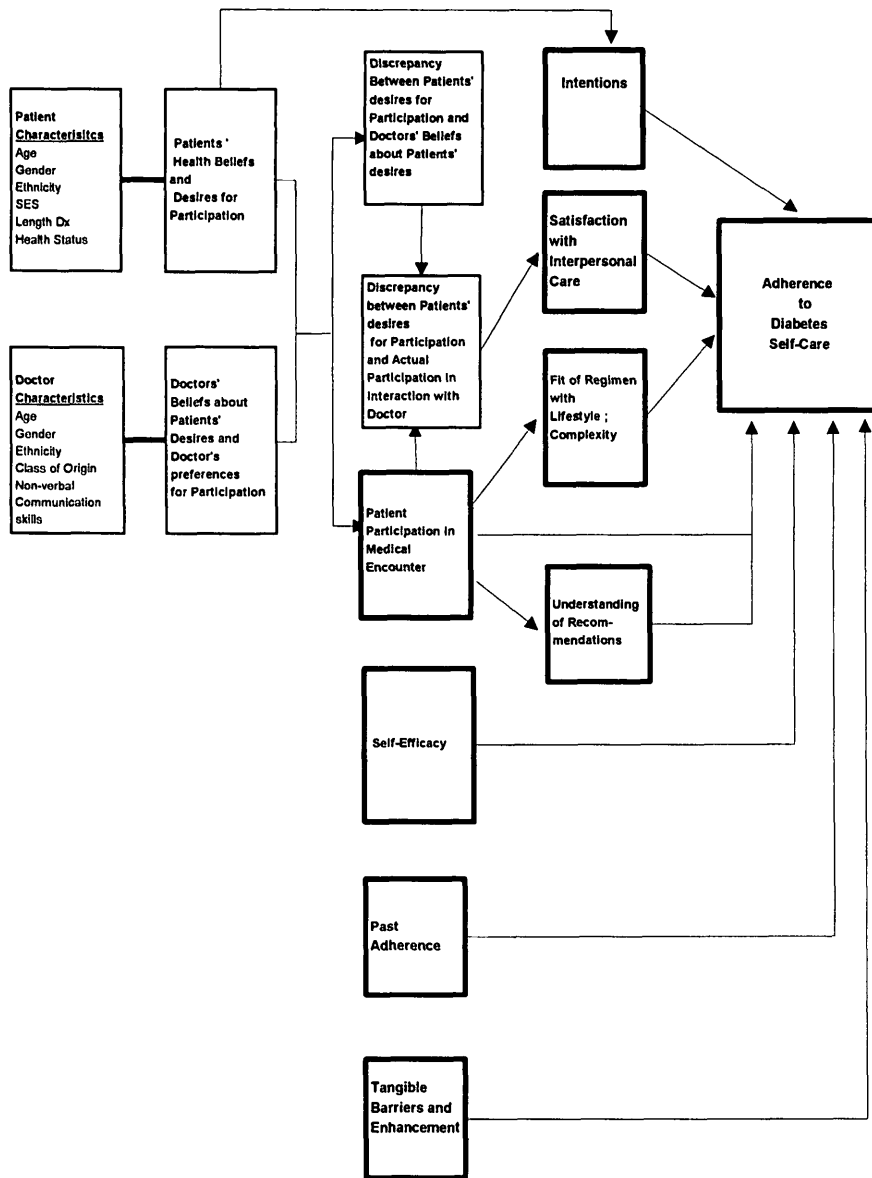


Figure 1—Model of determinants of adherence to diabetes self-care.

particularly for patients with diabetes, including a theoretical discussion of the definition of patient participation in medical decision making.

In this article, we define the patients' degree of adherence to diabetes self-care as the extent to which patients carry out the collection of daily activities recommended to them by a health care professional to manage their diabetes. These include dietary activity, exercise, taking medication, monitoring blood glucose, and foot care, as well as the timing and integration of all of these activities (30). Patients can be adherent to some or all of these activities or can be partially adherent to each.

We define patient participation in medical decision making to be any behavior, initiated by the doctor or the patient, surrounding the doctor visit, which facilitates the inclusion of the patient's perspective or the patient's preferences into the medical plan. Our view is that patient participation in medical decision making is a complex construct with multiple components that include: 1) development of a conducive atmosphere, 2) exchange of information, 3) integration of information, 4) communication of preferences and recommendations, 5) assessment of understanding, 6) negotiation, 7) making, and 8) carrying out the final decision (see Fig. 2).

In our view, any of these eight steps has the potential to facilitate the inclusion of the patient's view into the medical plan. Our complete definition of patient participation and its components are described in detail below.

A MODEL OF ADHERENCE TO SELF-CARE — The following model of adherence to diabetes care examines factors that influence diabetes patients' adherence to their diabetes regimens (see Fig. 2). This model provides one comprehensive framework for future studies of adherence to diabetes self-care that incorporates the role of patient participation in medical decision making. Our proposal complements other models of diabetes self-care and health behavior (31–38).

In our model, patient participation can affect adherence in three ways: 1) it may have a direct effect; 2) it may affect adherence to self-care indirectly by affecting patients' understanding of their treatment regimen or the fit of their regimen with their lifestyle; and 3) perceived omissions of participation can affect adherence to self-care indirectly through an effect on patient satisfaction. Social support, past adherence, self-efficacy, fit of the treatment regimen with patients' lifestyles, patients' understanding of the regimen, their satisfaction and intentions to adhere also affect adherence to self-care directly. Further, health beliefs indirectly affect adherence through their effect on intentions to adhere.

Patient satisfaction is an intermediate variable affecting adherence to self-care. Patient and physician characteristics affect patients' and physicians' desires and beliefs. Differences may exist between what patients desire with regard to participation and what their doctors both desire and believe patients desire. These differences affect what actually occurs in the doctor visit. The difference between patients' desires for participation in medical decision making and the type of participation that actually occurs, which we will call perceived omissions of participation, will affect patients' satisfaction with their care (16,19,39,40). This, in turn affects adherence to self-care (39). By recognizing the potential role of perceived omissions of participation in affecting adherence, this model offers a tool for developing interventions: assessing patients' expectations regarding participation before the doctor

visit; then tailoring medical care to meet these expectations (41).

Adherence to self-care

The primary goal of this article is to discuss what is known about factors affecting adherence to diabetes self-care specifically as they relate to patient participation in medical decision making. For those interested in a more in-depth discussion of the extensively studied topic of patient adherence to diabetes care, we refer the readers to several excellent reviews (4,5,19,30,42,43).

Many studies of adherence to treatment recommendations are limited by the use of correlational and cross-sectional rather than prospective or experimental designs (30,44). Even studies that include interventions, use convenience rather than representative samples or do not report on the representativeness of their sample (30). These two factors limit an ability to establish clear causal relationships. We identify studies that assess a causal relationship between predictor variables and adherence using prospective or experimental designs. With some exceptions (45-48), many studies have failed to assess multiple predictor variables concurrently (30,49).

General adherence

Early theories of determinants of general adherence to treatment recommendations focused on the role of health beliefs. The Health Belief Model (50), initially developed to explain preventive health behaviors, has also been used to explain adherence to treatment regimens (11,51). Its proponents contend that people's decisions to follow specific health regimens depend on a balance of perceived susceptibility and seriousness of the disease, perceived utility of treatment and degree of exposure to cues to action. Unfortunately, most studies using this model have been limited by the use of concurrent correlational designs (32). The Theory of Reasoned Action proposes that a patient's intentions to follow a treatment plan most influence whether or not the plan is followed (52). Intentions are affected by one's attitudes toward the plan and one's beliefs about what others want one to do. General models of adherence have since expanded to include factors beyond health beliefs (4,19,21,51,53).

Building on earlier models as well as recent research, DiMatteo et al. (53) devel-

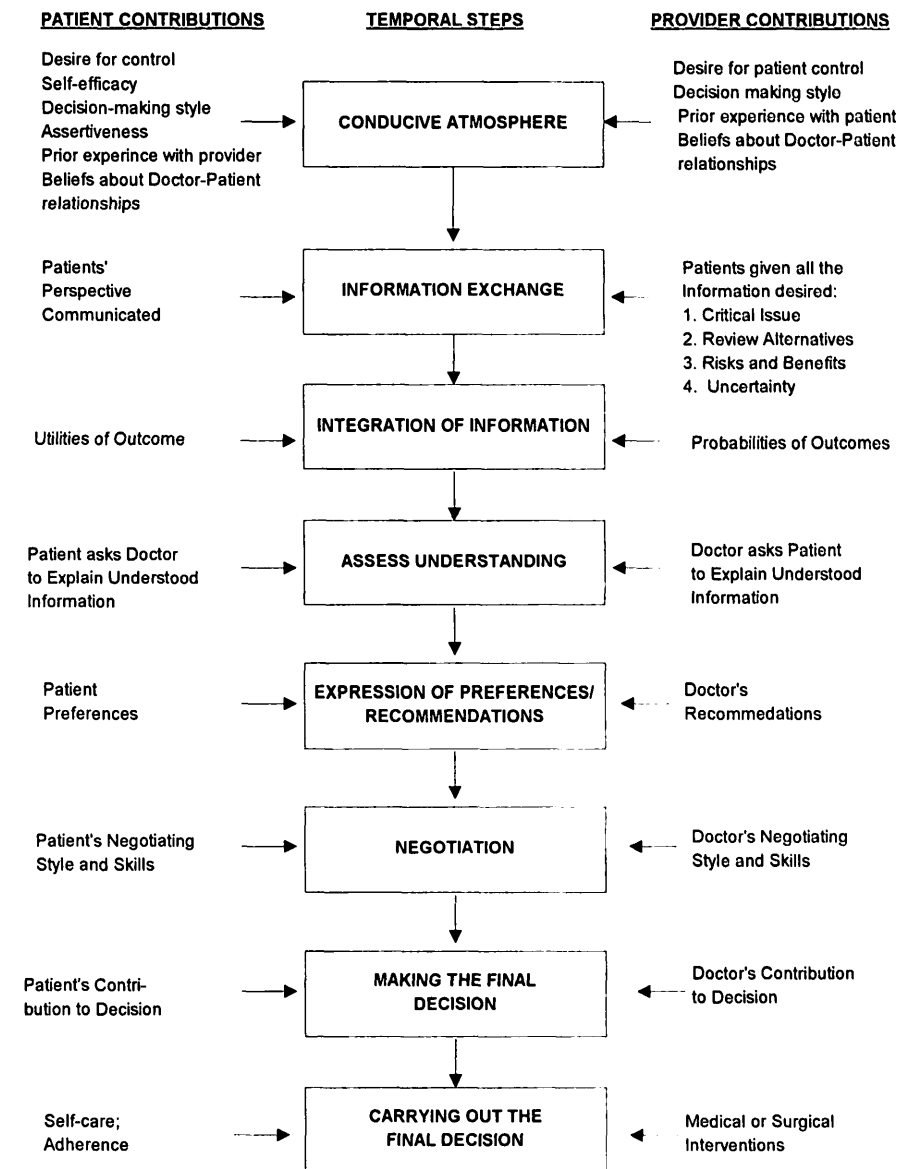


Figure 2—Patient participation in medical decision making.

oped a more comprehensive model of adherence. They hypothesized that health beliefs (perceived severity, susceptibility and utility of treatment, health values, and subjective norms) affect adherence indirectly through their effect on intentions to adhere. Furthermore, the effect of intentions on adherence are moderated by other factors that also directly influence adherence: practical supports and barriers such as social support and environmental barriers, past adherence behavior, perceived interpersonal aspects of care, and understanding of the regimen (21,53). In other words, even when patients are motivated to adhere to a procedure like checking their blood sugar, they may be unable

to do so because of other moderating factors such as a busy factory job or lack of money. In four studies of cancer patients using this model, perceived utility of adhering was the only health belief that contributed significantly to patients' intentions to adhere. Social and environmental supports and barriers had the strongest direct effect on adherence (53). Prior adherence was also a strong predictor of future adherence (53). Of these four cancer studies, only one showed an effect of interpersonal aspects of medical care on adherence (53).

Some studies have shown a strong correlation between interpersonal aspects of medical care and adherence in patients

(21,39,54,55). Patient satisfaction with medical care is an important determinant of adherence in many illnesses. In a study by Korsch et al. (56), in an acute care setting, patients' expectations were measured prospectively for many aspects of medical care. When these expectations were not met, patients were less satisfied and less adherent to treatment recommendations. It seems likely that in chronic illness, when patients' desires for care are not met, patients are less satisfied, less adherent, or both.

Thus, adherence to self-care has been shown to be affected directly by intentions to adhere, tangible social and environmental supports and barriers, past adherence, understanding of the regimen, patient satisfaction, and some interpersonal aspects of care. In addition, it is related indirectly to some health beliefs through their effect on intentions to adhere. Understanding the relationship among these variables, clinicians recognize different ways to help patients follow treatment plans: by helping to motivate them or by helping to reduce barriers.

Adherence in diabetes self-care

Patients with diabetes have more difficulty complying with their treatment plans than other chronically ill patients (21). Adherence with one part of the diabetes regimen is often unrelated to adherence with other parts (4,8–10,30,42,43). Most difficult are dietary changes and exercise (4,19). Researchers have identified few determinants of adherence to diabetes self-care (4,8–10,16,21,57). Early studies of adherence to diabetes regimens focused primarily on demographic variables (4), often overlooking psychosocial and environmental factors (19). Demographic variables, including income, education, sex, ethnicity, and marital status, did not predict adherence for patients with diabetes (4).

Recently, studies of adherence to diabetes self-care have focused on psychosocial variables. Health beliefs of diabetic patients have been reported to explain up to 50% of the variance in diabetes self-care behavior (4,12,13,58) although such studies are correlational and not prospective. A patient's self-care skills and ability to understand a treatment regimen but not knowledge of diabetes are related to ability to adhere to diabetes self-care (4,59). How complex a treatment regimen is (60,61) and how well it fits with a patient's lifestyle

(19,62) influence how well a diabetes patient can adhere.

Patients' self-efficacy is increasingly recognized as an important psychosocial factor affecting adherence in diabetes care (17,59,60,63). Self-efficacy is the central concept of Bandura's Social Cognitive Theory. It is defined as a belief in one's ability to organize and carry out a plan to meet the demands of a specific situation (59,63–65). Self-efficacy is particularly important because it not only predicts behavior but also can be enhanced by interventions and consequently can be used to change people's behavior (5,63). Self-efficacy also has a consistently highly significant effect on adherence to medical treatment (66–68). Patients with diabetes who score higher on self-efficacy measures are much more likely to adhere to their diabetes treatment plan in the future, even controlling for past levels of adherence (17,49,59,60,69,70).

More recently, researchers of adherence to diabetes care have evaluated social and contextual factors such as social support, financial support, insurance coverage, policy decisions, and environmental barriers. Social and environmental supports and barriers strongly influence the ability of patients with diabetes to carry out their treatment plans (4,14,21,47,71,72). In a longitudinal study of patients with chronic illness, only among the patients with diabetes was adherence related to perceived availability of social support, both tangible and emotional (21). Other studies confirm that social support plays an important role in patients' abilities to manage their diabetes (14,15). Some workers have explored both positive and negative effects of social support on adherence (71,72). The negative effects of supportive behavior upon adherence in the parent-child relationship have been examined by Anderson et al. (71). Such processes have also been described for interactions between spouses (72).

In sum, adherence to self-care for diabetes treatment involves complex behavioral changes that are influenced by a number of psychosocial and environmental variables. Patient participation in the medical visit may be a psychosocial variable that should be included in a comprehensive model of adherence to diabetes self-care. Similar to DiMatteo's model of general adherence, we have suggested a comprehensive model that includes determinants discussed above and that incor-

porates the role of patient participation in medical decision making.

An intermediate variable affecting adherence—patient satisfaction with medical care

Our model positions patient satisfaction as an intermediate variable that can affect adherence to treatment recommendations and can be affected by patient participation (39,73,74). We have proposed that patient satisfaction is likely to be affected by the level of patient participation in medical decision making when it is assessed in relation to patients' expectations. According to Expectancy Theory, satisfaction is determined by the discrepancy between the patient's perception of an outcome for a valued dimension of health care and the extent to which the outcome meets prior expectations or desires (40,75). In this case, these are the patients' desires for participation in medical decision making.

It is not surprising that several studies have demonstrated a relationship between the doctor-patient interaction and patient satisfaction; however, few studies have looked directly at the effect of patient participation on patient satisfaction (23,27,56,76–80). Increased information giving, meeting of expectations, and expression of empathy affect patients' satisfaction with their medical care more than do costs of care or technical competence of the physician (81–83). In one study, primary care patients who preferred a more active role in decision making were less satisfied with their medical care overall and with the way decisions were made (84). Among patients with type II diabetes, those who wanted more personal control were less satisfied and those who wanted more clinician control were more satisfied (41). Results of these studies imply that there was a lack of active patient participation but this was not measured directly. In a different study, patients were more satisfied with interactions in which they expressed their own opinions (29). On the other hand, in an experimental study, patients who were trained to ask more direct questions were less satisfied with their care than were control subjects (85). This somewhat unexpected finding may reflect the fact that some of the patients trained to ask more questions actually preferred a less active role. The available studies suggest that patients' participation in decision making

assessed in relation to patients' desires for participation can affect satisfaction. However, more studies are needed to test this relationship.

PATIENT PARTICIPATION IN MEDICAL DECISION MAKING —

Researchers postulate that expanding diabetic patients' participation in the doctor visit would improve adherence to self-care plans (15,24,25,86,87). Kaplan et al. (27), in a randomized controlled trial, showed that patient participation improved blood glucose control in patients with diabetes. However, they did not specifically evaluate effects on adherence to self-care. Increased patient participation in the medical encounter might improve health outcomes for several reasons (88–90). First, the complexity of a treatment regimen and its fit with the patient's lifestyle clearly affect adherence with recommended treatments (19,61,62,91). If patients are permitted to communicate their concerns, their lifestyle, and their priorities to the provider, the treatment plan is more likely to be appropriate and realistic for each patient (89,90). Second, as patients receive more of the information they want about their diabetes, they have the knowledge they need to care for their condition (20). In addition, as patients are more in control of the interaction during the medical encounter, they may feel empowered to carry out their treatment plans (26,89,92). Finally, for some patients, increased participation in the doctor visit may improve their adherence by increasing their satisfaction with medical care (56).

It seems likely that increasing patient participation in medical decision making improves adherence to self-care (29,75, 88–90,93–97). However, it is clear that most patients do not want to make all medical decisions on their own. How much, in what ways, and under what circumstances patients do want to make decisions regarding their medical care is an important question. We will review below what is known about patients' desires for participation in medical decision making, specific patient characteristics that affect these desires, and the interaction between these desires and patients' behavior in medical encounters. Finally, we will evaluate the few studies that have tried to assess whether patients' participation in specific aspects of medical decision making actually improve their adherence to treatment

recommendations. Before discussing the data regarding patient participation in medical decision making, we will suggest a theoretical framework to guide future investigations and interventions.

PATIENT PARTICIPATION IN MEDICAL DECISION MAKING: TOWARD A THEORY —

A theory of patient participation in medical decision making should meet three requirements. First, it must specify each stage entailed in the medical decision making process. Second, it should include both doctors' and patients' contributions to each stage of the decision making process. Finally, it must distinguish between the effects of what patients and doctors say they want, what they actually do in the medical visit, and the discrepancy between the two. A theory using these three approaches offers specific targets for the development of interventions to improve diabetes self-care.

First, partly because of the lack of an agreed-upon theoretical definition, most studies of patient participation in medical decision making assess only one or two steps of the medical decision making process: usually information giving by the doctor and general decision making by the patient or doctor (84,98–104). However, in their study of 3,000 patients, Byrne and Long identified six phases of the medical encounter that are recognized by patients and doctors: introduction, history taking, examination, identification of the problem, discussion of future management, and conclusion. Each phase differs with regard to goals, structure, and the types of communication behaviors that make the interaction successful (105). Our model uses a similar approach by recognizing eight steps in the decision making process.

Second, studies of patient participation in medical decision making generally focus only on either the role of the doctor or of the patient in the medical encounter (27,81,84,101). For example, most studies focus on the transfer of information from the doctor to the patient (81,101). However, in practice, the flow of expert information occurs in both directions. The nature of modern medical knowledge leads patients to rely on health care providers as experts (90). At the same time, patients are experts with regard to important information about themselves (24,106–108). Similarly, at each step of

medical decision making both patient and doctor behaviors affect patient participation (109).

Third, studies have ignored the important question of whether people's preferences for participation in medical decision making moderate the effect of participation on outcomes. Studies show that people's behaviors in the medical visit differ from their attitudes about the medical visit (93,101). More research is needed to understand the reasons for the discrepancy between what people say they want and what actually takes place in the encounter. A perceived omission of participation is the perception that one did not participate in making decisions as much as he or she had desired (110). When there is a discrepancy between what people say they want to do and what they do, either the actual level of patient participation or the perceived omissions of participation may affect health outcomes (111). One study of general medical patients assessed the effect of both self-reported level of participation in medical decision making and the discrepancy between preferred and self-reported participation on patients' improvement in their symptoms. In this study, self-reported participation, not the discrepancy, predicted improvement (112). Regardless of the amount of participation patients preferred, patients had more improvement in symptoms when they perceived that they were more involved in decision making. The distinction between the effects of perceived omissions of participation and of actual participation is an important one. Including this distinction in our conceptual framework helps us to understand the different ways patient participation in medical decision making may affect adherence.

Brody suggests that facilitation of patient involvement is made up of four parts: 1) establishment of a conducive atmosphere; 2) ascertainment of patient's goals; 3) informing the patient; and 4) eliciting of patient's informed suggestions and preferences and negotiation of any disagreements (88). Brody's model provides us with a place to start identifying steps at which patients could participate in decision making. We suggest eight temporal steps of medical decision making during which patient participation may occur: 1) creating a conducive atmosphere, 2) information exchange, 3) integration of information, 4) assessment of understanding, 5) development of preferences and recom-

mentations, 6) negotiation, 7) making the final decision, and 8) carrying out the final decision (see Fig. 2).

The first step is creating a conducive atmosphere. Studies of patient participation often ignore that patients' abilities to participate in their medical care are affected by the clinical atmosphere. Studies of doctor-patient communication demonstrate that physician and staff behavior can discourage patients from talking or asking questions (83,113). In addition, teaching patients to ask questions or identify their preferences can facilitate patients to be more involved in the doctor visit (27,114). In one study of patients attending an urban diabetes clinic, patients who felt respected by their doctors were more likely to comprehend their treatment regimen (108). In our model, development of a conducive atmosphere is the first step in patient participation.

Our second step is information exchange. Brody's model stresses the importance of eliciting patients' goals. Our model broadens this concept. Patients inform their doctors not only about their goals, but also about their experiences, lifestyles, abilities, concerns, and beliefs (105). We expand this concept to include these features and combine it with Brody's third step, informing the patient, to identify one step that we call information exchange. For patients with diabetes, the type of information patients want to exchange will differ based on the stage of their illness (114,115).

Third, once information exchange occurs, step three, integration of information, and step four, assessment of understanding, need to occur (116). For doctors and patients to be able to make choices about medical options, they must first integrate all available information. This step reveals most the complex nature of medical decisions. The process involves varying degrees of uncertainty, requires combining and weighing probabilities for numerous hypothetical outcomes, and uses utilities which may be unknown or conflicting (90,114,115,117,120). Both patients and physicians may lack the skills needed to integrate probabilistic and hypothetical information in this way. Once information is integrated, doctor and patient should assess each other's understanding of the information exchanged (116).

Brody combines identification of preferences and negotiation into one step. Ideally, preferences would first be formed and expressed before negotiation can take

place (118). In our model, we make this distinction explicit by identifying these two activities as separate steps. In step five, patients develop preferences and doctors develop their opinions of what plan to recommend. Our sixth step, negotiation, involves identification of areas of disagreement, commitment to finding a common solution, and each party deciding on the changes that they are willing to make in their expressed preferences (119). Often in diabetes care, negotiation involves discussion of areas of the treatment plan that are not working (121).

Finally, our model adds steps seven, making a final decision, and eight, carrying out the decision. Ultimately, after all negotiation has taken place someone—the doctor, the patient, or a patient proxy—has to make a final decision about what the care will be and someone, depending on the type of care, has to carry out the decision. Our model makes these last two steps explicit.

In sum, we propose that patients and doctors may contribute to the level of patient participation in medical care at any of eight identifiable stages of the decision-making process. Both doctor and patient contribute to the degree to which patients are involved in decision making at each stage. Integration of imperfect information, both medical and about the patient, takes place by a complicated process involving uncertainty. By this process, doctors develop recommendations and patients form preferences. Recognizing these features of patient participation provides a framework for studying the types of participation patients want. Such an approach will also begin to clarify the current role that patient participation plays in medical care of patients with diabetes. Additionally, exploring the effects of patients' perceived omissions of participation in addition to actual patient participation with their medical care will help clinicians and policy makers understand the mechanisms by which patient participation affects health outcomes.

PATIENT PARTICIPATION IN MEDICAL DECISION MAKING: A REVIEW OF THE LITERATURE

Patient desires for participation in medical decision making

How involved do patients want to be in medical decision making? In what ways

and at what steps do they want to be involved? Studies of patients' desires for participation in medical decision making have varied in their answers to these questions depending on the characteristics of the sample and the instrument used to measure preferences for participation (84,98–104). The inconsistencies in these studies partly reflect the lack of a clear theoretical framework regarding the meaning of patient preferences and patient participation (98,100–103).

We know that a large majority of patients want more information than they receive from their doctors (23,81,84, 94,100–103,122,123). It is not only the quantity but the quality of the information provided that is important to the patient (23,103).

Reports of patients' preferences for direct participation in medical decision making are more variable. While some studies have found that a majority of patients have a strong desire for participation in medical decision making (98,102,103), others have not (84,101, 104), or have shown mixed results (100). For example, 47% of hypertensive patients indicated that the "clinician should make the [medical] decision using all that is known about the medicines" rather than four other response options that incorporated more patient input into the decision. However, a majority of these same patients preferred to participate with the clinician in discussions about therapy (100). Reports also vary regarding whether patients' preferences for information and for making decisions are correlated (84,102,103). Communication of information from the patient to the clinician is one aspect of patient participation that only a few studies have included (24,97,109,124). Kravitz et al. (98), found that 71% of primary care outpatients considered "discussion of [their] own ideas about how to manage [their] condition" to be a necessary feature for the physician to provide as part of the visit. Among family practice patients, those whose physicians allowed them to express all of their concerns were more likely to resolve their concerns, although they did not feel more understood or satisfied with the care (27).

For patients with diabetes, the question of how involved patients want to be in medical decision making has been tested in a few studies (41,125,126). One study of 47 low-income inner city patients with diabetes measured patients' preferences

for receiving information and preferences for behavioral participation in medical care. The authors did not evaluate a comparison group in their study but found that their subjects had lower mean scores of preferences for participation than healthy college students responding to the same questions in other studies. However, it is unclear how much these differences in preferences were due to group differences in health status, socioeconomic status, age, or study conditions (125). Among 89 patients with diabetes in another study, 36% reported that they preferred participatory diabetes education and care and the remaining patients preferred a prescriptive approach (126). However, this study assessed only preferences for participation in educational aspects of care, not for other aspects of participation in the patient-provider interaction (41,126). Anderson et al. (41) developed and tested a multidimensional desire for control scale in two independent groups of patients with type II diabetes. In both groups, most patients scored higher on measures of desire for clinician control and shared control and scored relatively low on measures of desire for independent patient control in clinical encounters. Patients' desires for independent control correlated inversely with satisfaction whereas patients' desires for clinician control correlated positively with satisfaction (41).

One study examined 55 patients' experiences and expectations of communication with a diabetes team (127,128). A significant number of patients reported that they experienced communication that lacked support, adequate explanations, and realistic advice. Patients expected the team to show interest in them as an individual and to provide more information (127). Therefore, patients with diabetes may desire more information exchange in their medical visits than they currently experience. However, more studies are needed that explore the degree and type of participation patients with diabetes would prefer in the medical visit.

Patient characteristics associated with patient desires for participation

Even among studies showing that most patients want to participate in making medical decisions, a significant minority prefers that the doctor play a more authoritarian role (102). Several studies have therefore tried to identify patient characteristics that identify which patients prefer

to participate in medical decision making. Younger patients consistently desire more information (84,101–103), more discussion, and more participation in decision making than their older counterparts (41,84,102,103). Factors other than age are not consistently associated with desires for patient participation. Although several studies of primary care patients found a correlation between preferences for participation in decision making and higher socioeconomic status (84,100), Beisecker and Beisecker (101) found that situational variables (such as type of illness, type of visit) were more directly associated with information-seeking behavior than were patient attitudes or sociodemographic characteristics.

Many studies have documented sex differences in communication patterns with doctors. Female patients communicate more and are given more information than male patients (81,83,102,122,123,129). These sex differences in communication style have also been documented in patients with diabetes (25). However, studies assessing patients' desires for participation in decision making have produced inconsistent results regarding sex differences (84,101–103).

Ethnicity is a patient characteristic that may influence desires for patient participation. In one study, patients who were more likely to believe that patients should participate in making medical decisions were more likely to be white (100). Patients' ethnicity may influence their beliefs about rules governing communication including the expected roles of the physician and patient. For example, Erzinger (130) showed that Latino patients expected specific communication behaviors from their practitioners, governed by culturally defined rules and values. When these behavioral rules were violated, nonrecoverable miscommunication occurred.

Health status has also been postulated to affect patients' desire for participation in their care. Again results are equivocal. Among cancer patients, poor performance status correlated with desire for a less participatory role (102) in some studies but not in others (103). In primary care, healthier patients want to be more active in decision making than sicker patients (84).

Two studies have tried to identify which diabetes patients are more likely to want actively participate in making decisions about their care (41,126). Younger

age and attendance of a diabetes class correlated with an increased desire for a participatory role in one study (126). Anderson et al. (41) examined the association between the characteristics of patients with type II diabetes and their desires for types of control in the clinician-patient interaction. More educated patients preferred less clinician control and the longer patients had diabetes the greater the desire for personal control. A few studies have evaluated patient factors related to participation in diabetes education programs, which may be related to desire for participation in medical decision making in general (131,132). Younger age is consistently associated with greater likelihood of participation in diabetes education programs. In addition, treatment with insulin, higher education level, African-American ethnicity, and residence in an urban area were associated with participation among a representative sample of 2,405 patients with types I or II diabetes (131).

Physicians' beliefs and desires for patient participation

Few studies have evaluated physicians' beliefs about patient participation in medical care. One study found that doctors underestimated the amount of information and discussion that hypertensive patients preferred but overestimated how often patients wanted to make the final decision (100). We also know that many physicians demonstrate an aversion for patient-initiated questions (83,106,133). Other studies have looked at physician behavior in interactions with patients. For example, one study showed that many physicians regulate the topic of conversation by interrupting the patient, using jargon, and introducing new topics (113). However, as with patients, it may be that physician attitudes about patient participation do not predict their behavior. The clinician faces the difficult balancing act of addressing adherence with the patient yet doing so in a way that is not threatening or overly critical. Doctors' behaviors may reflect the competing goals they face when seeing patients: time constraints, managed care guidelines, and the goals of medical management, as well as the goal of involving their patients in medical decision making.

Summary: patients' desires for participation

In sum, clinicians must keep in mind that most but not all patients want to receive a

great deal of information. Reports of patients' desires to participate in other aspects of decision making have been more variable. Patients' age is the only characteristic that has been consistently associated with both patients' desires for information and desires to participate in medical decision making. Thus, the clinician should keep in mind that younger patients generally want more information and participation in decision making than older patients. Data related to patients' desires for participation suggests that sex and ethnicity may be associated with desires for patient participation. At the same time, socioeconomic status may not predict patients' desire for information and participation. Unfortunately, little information is available about physician preferences for patient participation.

For patients with diabetes, age, length of diagnosis, mode of treatment, and level of education may influence patients' preferences for participation (41,126,131,132). Only ~36% of patients with diabetes in one study preferred a high degree of participation (126). Most patients with diabetes did not score high on measures of desire for independent patient control (41,126). On the other hand, the same patients with type II diabetes scored relatively high on measures of both desire for shared control and desire for clinician control (41). For many patients with diabetes, shared control may represent an active participatory role. It is not surprising that most patients do not want completely independent control in the medical encounter, because they have come to the physician to obtain expert advice. However, this may not preclude patients' desire for participation in medical decision making through shared control. Many diabetes patients may prefer more participation in medical decision making than they currently experience. Finally, for patients who prefer a patient-controlled encounter, a discrepancy between patient and provider expectations (41,126) may lead to decreased satisfaction in these patients. Because no characteristic other than age can consistently predict patients' desires for participation, clinicians and researchers might consider assessing patients' desires for participation in medical decision making before the visit. This could help clinicians and researchers tailor their approach to each patient with diabetes.

Effect of patients' and physicians' desires on actual patient participation

How patients' and physicians' desires for patient participation affect patients' actual participation in the encounter is unclear. A few studies have tried to evaluate the relationship between what patients say they want with regard to participation and what actually occurs. While most patients in all groups want more information, patients rarely attempt to obtain it in the medical visit (93,101). Patients' desires for information in the medical encounter did not predict the information-seeking behavior of the patient or the information-giving behavior of the provider (81,101,102,122,123). Interestingly, however, patients' desire for mutual participation in decision making did predict physician behaviors that facilitated patient participation (123).

EFFECT OF PATIENT PARTICIPATION ON ADHERENCE TO SELF-CARE —

A few studies have found a link between some aspect of patient participation and some aspect of adherence to treatment recommendations although few were prospective. A direct link was found between patient participation in one doctor visit and subsequent self-reported adherence among outpatients in family practice clinics (27). Interestingly, it was the doctor behavior rather than the patient behavior that predicted adherence. A total of 140 doctor-patient interactions were audiotaped and coded for the degree to which the doctor actively sought the patient's point of view. The degree of patient centeredness of the doctor's behavior was significantly related to future self-reported adherence. In another prospective study, the more patients expressed their views, the more they adhered to prescribed treatments (24,109).

Among patients with diabetes, several researchers have suggested, not surprisingly, that doctor-patient communication may have an important influence on patients' self-care behavior (16,19). Anderson postulates that disagreement between doctor and patient over expectations and perceptions of diabetes will increase patient anxiety, which will lead to avoidance of self-care. Patients report that they feel less motivated to adhere when they are scolded by a provider (127). Amir

et al. (16) used hypothetical situations to test the hypothesis that a positive interaction between patient and providers, one in which conflict is negotiated well and criticism of the patient is avoided, correlates with adherence in diabetes patients. These authors were able to show a correlation between adherence and patients' negotiating skills. These results suggest that patient participation in the medical encounter may be related to adherence in patients with diabetes. However, the correlational nature of these studies limits our ability to determine causality.

One study has directly evaluated the effect of patient participation on adherence to self-care among patients with diabetes. Rost studied 30 randomly sampled segments of audiotapes from doctor visits with 45 male general medical patients, 23% of whom had diabetes, to assess the influence of patient participation prospectively on satisfaction and adherence (24). Three types of patient participation were identified and assessed: patients providing answers to doctors' questions, patients offering information spontaneously, and patients interrupting the physician. The amount of information patients gave doctors both in response to doctors' questions and spontaneously was significantly correlated with subsequent adherence to new medications but not to refilled prescriptions. Also, patients were more satisfied when they interrupted doctors and less satisfied when doctors interrupted them (24). In sum, there is evidence to suggest that increased patient participation in medical decision making for diabetes care is related to satisfaction and adherence, but much additional research is needed to confirm this and to tease out the relative effects of different aspects of patient participation.

CONCLUSION

Clinical implications and policy relevance

Diabetes affects a significant proportion of Americans and causes a large burden of illness. Improved glycemic control clearly reduces complications of diabetes. In addition, more effective self-care can improve glycemic control. Despite this, a majority of patients with diabetes have been unable to adhere to their treatment regimens. Interventions to improve adherence to self-care for patients with diabetes are clearly

needed to begin to reduce both the burden of suffering and financial costs imposed by this chronic condition. An understanding of the determinants of adherence to self-care is a crucial initial step in the development of effective interventions.

How involved patients with diabetes are in medical decision making may have an important influence on how well patients can care for themselves. However, much research is needed to identify components of patient participation that affect adherence to self-care. Such information could be used to develop specific behavioral interventions targeted at patients and their physicians to improve their communication behaviors, adherence to self-care, and ultimately health status. The controlled studies by Greenfield et al. (134) showed the remarkable impact that increasing patient participation can have on health outcomes in chronic diseases including diabetes. Ultimately such interventions could be aimed at improving patients' quality of life and functional ability. Distinguishing patient and physician behaviors that contribute to the process of patient participation would provide a means to develop specific behavioral interventions. Patients may differ in their preferences for particular communication styles. Until we know more about the effects of specific aspects of patient participation, clinicians can assess their patients' preferences before or during the patient visit. This information can then be used to individualize the doctor's approach to each patient.

An essential issue to be addressed in the future is how behavioral interventions aimed at improving the quality of care can be carried out in different practice settings under pressures of cost containment. In addition, follow-up contact may be a critical factor influencing patients' ability to adhere over time for patients with diabetes, particularly regarding the effect of patient participation. Communication patterns and styles and their impact may change over time in an ongoing relationship with a provider. As changes in our health care system potentially threaten the continuity of the doctor-patient relationship, how these factors are affected by continuity should also be the focus of future studies. To understand ways to improve medical decision making with patients, we must first understand the range of approaches that exist, how they may vary in different settings, and how

they are affected by the constraints clinicians face in busy practice settings.

Acknowledgments— This work was supported in part by the Clinical Scholars Program of the Robert Wood Johnson Foundation. The views and opinions contained herein are the authors' and not necessarily those of the Robert Wood Johnson Foundation.

We thank Yolia Aguirre for technical support and Sarah Golin, M.A. for editorial assistance.

References

- Vinacor F: Is diabetes a public-health disorder? *Diabetes Care* 17:22–27, 1994
- Harris MI, Hadden WC, Knowler WC, Bennett P: Prevalence of diabetes and impaired glucose tolerance and plasma glucose level in U.S. population aged 20–74 years. *Diabetes* 36:523–534, 1987
- Clark CM, Vinacor F: Introduction: risks and benefits of intensive management in NIDDM: the Fifth Regenstrief Conference. *Annals of Intern Med* 124:81–85, 1996
- Goodall T: Self-management of diabetes mellitus: a critical review. *Health Psychol* 10:1–8, 1991
- Padgett D, Mumford E, Hynes M, Carter R: Meta-analysis of the effects of educational and psychosocial interventions on management of diabetes mellitus. *J Clin Epidemiol* 41:1007–1030, 1988
- Kravitz R: Recall of recommendations and adherence to advice among patients with chronic medical conditions. *Arch Intern Med* 153:1869–1878, 1993
- DCCT: The effects of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 329:975–986, 1983
- Watkins J, Williams F, Martin D, Hogan M, Anderson E: A study of diabetic patients at home. *Am J Public Health* 57:452–457, 1967
- Wing R, Epstein L, Nowalk MP, Scott N, Koeske R: Compliance to self-monitoring of blood glucose: a marked-item technique compared with self-report. *Diabetes Care* 8:456–460, 1985
- Christensen N, Terry D, Wyatt S, Pichert J, Lorenz R: Quantitative assessment of dietary adherence in patients with insulin-dependent diabetes mellitus. *Diabetes Care* 6:245–250, 1983
- Rosenstock IM: Understanding and enhancing patient compliance with diabetic regimens. *Diabetes Care* 8:610–616, 1985
- Becker M, Janz N: The health belief model applied to understanding diabetes regimen compliance. *Diabetes Educ* 11:41–47, 1985
- Bloom J, Cerkoney KA, Hart L: The relationship between the health belief model and compliance of persons with diabetes mellitus. *Diabetes Care* 3:594–598, 1980
- Schlenk E, Hart L: Relationship between health locus of control, health value, and social support and compliance of persons with diabetes mellitus. *Diabetes Care* 7:566–574, 1984
- Toobert D, Glasgow R: Problem solving and diabetes self-care. *J Behav Med* 14:71–86, 1991
- Amir S, Rabin C, Galatzer A: Cognitive and behavioral determinants of compliance in diabetes. *Health Soc Work* 15:144–151, 1990
- Kavanagh D, Gooley S, Wilson PH: Prediction of adherence and control in diabetes. *J Behav Med* 16:509–523, 1993
- Sanson-Fisher R, Campbell E, Redman S, Hennrikus D: Patient-provider interactions and patient outcomes. *Diabetes Educ* 15:134–138, 1989
- Anderson L: Health care communication and selected psychological adherence in diabetes management. *Diabetes Care* 13:66–67, 1990
- Mazucca S, Weinberger M, Kurpius D, Froehle T, Heister M: Clinician communication associated with diabetes patients' comprehension of their therapeutic regimen. *Diabetes Care* 6:347–350, 1983
- Sherbourne C, Hays RD, Ordway L, DiMatteo R, Kravitz RL: Antecedents of adherence to medical recommendations: results from the medical outcomes study. *J Behav Med* 15:447–467, 1992
- DiMatteo RM: A social psychological analysis of doctor-patient rapport: toward a science of the art of medicine. *J Soc Issues* 35:12–33, 1979
- Svarstad BL: Physician-patient communication and patient conformity with medical advice. In *The Growth of Bureaucratic Medicine*. Mechanic D, Ed. New York, Wiley, 1976, p. 220–238
- Rost K: The influence of patient participation on satisfaction and compliance. *Diabetes Educ* 15:134–138, 1989
- Street R, Piziak V, Carpentier W, Herzog J, Hejl J: Provider-patient communication and metabolic control. *Diabetes Care* 16:714–721, 1993
- Anderson RM, Funnell MM, Butler PM, Arnold MS, Fitzgerald JT, Festa CC: Learning to empower patients: results of a randomized controlled trial. *Diabetes Care* 18: 943–949, 1995
- Kaplan SM, Greenfield S, Ware J: Assessing the effects of physician-patient interaction on the outcomes of chronic disease. *Med Care* 27:110–127, 1989
- Rost K, Flavin K, Cole K, McGill J: Change in metabolic control and func-

- tional status after hospitalization. *Diabetes Care* 14: 881-889, 1991
29. Stewart M: What is a successful doctor-patient interview? A study of interactions and outcomes. *Soc Sci Med* 19:167-175, 1984
 30. Glasgow RE: Compliance to diabetes regimens: conceptualization, complexity, and determinants. In *Patient Compliance in Medical Practice and Clinical Trials*. Cramer JA, Spilker B, Eds. New York, Raven Press, 1991, p. 209-221
 31. Anderson LA, Sharpe PA: Improving patient and provider communication: a synthesis and review of communication interventions. *Patient Educ Couns* 17:99-134, 1991
 32. Glasgow RE: A practical model of diabetes management and education. *Diabetes Care* 18:117-126, 1995
 33. Mazze RS: A systems approach to diabetes care. *Diabetes Care* 17 (Suppl. 1):5-11, 1994
 34. Ruggiero L, Prochaska JO: Introduction: readiness for change: application of the transtheoretical model to diabetes. *Diabetes Spectrum* 6:22-24, 1993
 35. Karoly P: Goal systems: an organizing framework for clinical assessment and treatment planning. *Psychological Assessments* 5:273-290, 1993
 36. Karoly P: Enlarging the scope of the compliance construct: Toward developmental and motivational relevance. In *Developmental Aspects of Health Compliance Behavior*. Krasnegor NA, Epstein L, Johnson SB, Yaffe SJ, Eds. Hillsdale, NJ, Lawrence Erlbaum Associates, 1993
 37. Leventhal H: Theories of compliance, and turning necessities into preferences: application to adolescent health action. In *Developmental Aspects of Health Compliance Behavior*. Krasnegor NA, Epstein L, Johnson SB, Yaffe SJ, Eds. Hillsdale, NJ, Lawrence Erlbaum Associates, 1993, p. 91-124
 38. Wing RR, Epstein L, Nowalk MP, Lamparski DM: Behavioral self-regulation in the treatment of patients with diabetes mellitus. *Psychol Bull* 99:78-89, 1986
 39. Henbest R, Stewart M: Patient-centeredness in the consultation: does it really make a difference? *Fam Pract* 7:28-33, 1990
 40. Ross C, Sinacore J, Stiers W, Budiman-Mak E: The role of expectations and preferences in health care satisfaction of patients with arthritis. *Arthritis Care Res* 3:92-98, 1990
 41. Anderson LA, DeVellis RF, Boyles BF, Feussner JR: Patients' perceptions of their clinical interactions: development of the multidimensional desire for control scales. *Health Educ Res* 4:383-397, 1989
 42. Clement S: Diabetes self-management education. *Diabetes Care* 18:1204-1214, 1995
 43. Johnson DB: Methodological issues in diabetes research: Measuring adherence. *Diabetes Care* 15 (Suppl. 4):1658-1667, 1992
 44. Glasgow RE, Anderson BJ: Future directions for research on pediatric chronic disease management: lessons from diabetes. *J Pediatr Psychol* 20:389-402, 1995
 45. Peyrot M, Rubin FF: Structure and correlates of diabetes-specific locus of control. *Diabetes Care* 17:994-1001, 1994
 46. Peyrot M, McMurry JF: Stress buffering and glycemic control: the role of coping styles. *Diabetes Care* 15:842-846, 1992
 47. Glasgow RE: Social-environmental factors in diabetes: Barriers to diabetes self-care. In *Handbook of Psychology and Diabetes Research and Practice*. Bradley C, Ed. Berkshire, U.K., Hardwood Academic, 1994, p. 335-349
 48. Hanson CL, Henggeler SW, Harris MA, Burghen GA, Moore M: Family system variables and the health status of adolescents with insulin-dependent diabetes mellitus. *Health Psychol* 8:239-253, 1989
 49. Littlefield CH, Craven JL, Rodin GM, Daneman D, Murray MA, Rydall AC: Relationship of self-efficacy and bingeing to adherence to diabetes regimen among adolescents. *Diabetes Care* 15:90-94, 1992
 50. Rosenstock I: Why people use health-services. *Millbank Mem Fund Q* 44:94-127, 1966
 51. Becker M: Social behavior determinants of compliance with health and medical care recommendations. *Med Care* 13:10-24, 1975
 52. Ajzen I, Fishbein M: *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ, Prentice-Hall, 1980
 53. DiMatteo M, Hays R, Gritz E, Bastani R, Crane L, Elashoff R, Ganz P, Heber D, McCarthy W, Marcus A: Patient adherence to cancer control regimens: scale development and initial validation. *Psychological Assessment* 5:102-112, 1993
 54. DiNicola DD: Communication, interpersonal influence, and resistance to medical treatment. In *Basic Processes in Helping Relationships*. Wills TA, Ed. New York, Academic Press, 1982, p. 307-331
 55. DiMatteo M: Relationships of physicians' nonverbal communication skills to patient satisfaction, appointment non-compliance and physician workload. *Health Psychol* 5:581-594, 1986
 56. Korsch B, Gozzi E, Francis V: Gaps in doctor-patient communication. 1. Doctor-patient interaction and patient satisfaction. *Pediatrics* 42:855-871, 1968
 57. Toobert D, Glasgow R: Problem solving and diabetes self-care. *J Behav Med* 14:71-86, 1991
 58. Harris R, Linn M: Health beliefs, compliance, and control of diabetes mellitus. *South Med J* 78:162-166, 1985
 59. McCaul K: Diabetes regimen behaviors—predicting adherence. *Med Care* 25:868-881, 1987
 60. Glasgow R, Toobert D, Hampson S, Brown J, Lewinsohn P, Donnelly J: Improving self-care among older patients with type II diabetes: the "sixty something . . ." study. *Patient Educ Couns* 19:61-74, 1992
 61. Hulka B, Cassel J, Kupper L, Burdette J: Communication, compliance, and concordance between physicians and patients with prescribed medications. *Am J Public Health* 66:847-853, 1976
 62. Hallburg J: Teaching patients self-care. *Nurs Clin North Am* 5:223-231, 1970
 63. Hurley C, Shea C: Self-efficacy: strategy for enhancing diabetes self-care. *Diabetes Educ* 18:146-150, 1992
 64. Bandura A: Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev* 84:191-215, 1977
 65. Bandura A, Adams NE: Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research* 1:287-310, 1977
 66. Strecher VJ, DeVellis BM, Becker MH, Rosenstock IM: The role of self-efficacy in achieving health behavior change. *Health Educ Q* 13:73-91, 1986
 67. Bandura A, Reese L, Adams NE: Micro-analysis of action and fear arousal as a function of differential levels of perceived self-efficacy. *J Personality Soc Psychol* 43:5-21, 1982
 68. Rubin FF, Peyrot M, Saudek CD: The effect of a comprehensive diabetes education program incorporating coping skills training on emotional well-being and diabetes self-efficacy. *Diabetes Educ* 19:210-214, 1993
 69. Kingery PM, Glasgow RE: Self-efficacy and outcome expectations in the self-regulation of non-insulin dependent diabetes mellitus. *Health Educ* 20:13-19, 1989
 70. Charron-Prochownik D, Becker MH, Brown MB, Liang W, Bennet S: Understanding young children's health beliefs and diabetes regimen adherence. *Diabetes Educ* 19:409-418, 1993
 71. Anderson BJ, Coyne JC: Miscarried helping in the families of children and adolescents with chronic diseases. In *Advances in Child Health Psychology*. Johnson JH, Johnson SB, Eds. Gainesville, FL, University of Florida Press, 1993, p. 167-177
 72. Coyne JC, Anderson BJ: The "psychosomatic family" reconsidered: diabetes in context. *J of Marital and Family Therapy* 14:113-123, 1988
 73. Marshall G, Hays R, Sherbourne C, Wells K: The structure of patient satisfaction with outpatient medical care. *Psychologi-*

- cal Assessment 5:477-483, 1993
74. Zastowny T, Roghmann K, Hengst A: Satisfaction with medical care: replications and theoretical reevaluation. *Med Care* 21:294-318, 1983
 75. Linder-Pelz SU: Toward a theory of patient satisfaction. *Soc Sci Med* 16:577-582, 1982
 76. Francis VK, Korsch B, Morris M: Gaps in doctor-patient communication: patients' response to medical advice. *N Engl J Med* 280:535-540, 1969
 77. Bensing J: Doctor-patient communication and the quality of care. *Soc Sci Med* 32:1301-1310, 1991
 78. Bertakis K, Roter D, Putnam S: The relationship of physician medical interview style to patient satisfaction. *J Fam Pract* 32:175-181, 1991
 79. Hall J, Roter D, Rand C: Communication of affect between patient and physician. *J Health Soc Behav* 22:18-30, 1981
 80. Like R, Zyzanski S: Patient satisfaction with the clinical encounter: social psychological determinants. *Soc Sci Med* 24:351-357, 1987
 81. Waitzkin H: Information giving in medical care. *J Health Soc Behav* 26:81-101, 1985
 82. Hall DA, Roter D, Katz N: Meta-analysis of correlates of provider behavior in medical encounters. *Med Care* 26:657-675, 1988
 83. Roter D, Hall J: *Doctors Talking with Patients/Patients Talking with Doctors*. Westport, CT, Auburn House, 1993
 84. Ende J, Kazis L, Ash A, Moskowitz M: Measuring patients' desire for autonomy: decision making and information-seeking preferences among medical patients. *J Gen Intern Med* 4:24-30, 1989
 85. Roter DL: Patient participation in the patient-provider interaction: The effects of patient question asking on the quality of interaction, satisfaction and compliance. *Health Educ Monogr* 5:281-314, 1977
 86. Johnson SB: Regimen adherence: Roles and responsibilities of health care providers. *Diabetes Spectrum* 6:204-205, 1993
 87. Anderson LA, Zimmerman MA: Patient and physician perceptions of their relationship and patient satisfaction: a study of chronic disease management. *Patient Educ Couns* 20:27-36, 1993
 88. Brody D: The patients' role in clinical decision making. *Ann Intern Med* 93:718-722, 1980
 89. Kaplan R: Health related quality of life in patient decision making. *J of Soc Issues* 47:69-90, 1991
 90. Clarke D: Helping patients make health care decisions. *The Euthanasia Rev* 1:85-96, 1986
 91. Ary D: Patient perspectives on factors contributing to nonadherence to diabetes regimen. *Diabetes Care* 9:168-172, 1986
 92. Anderson RM, Funnell MM, Barr PA, Dedrick RF, Davis WK: Learning to empower patients: results of professional education program for diabetes educators. *Diabetes Care* 14:584-590
 93. Beisecker A: Patient power in doctor-patient communication: what do we know? *Health Communication* 2:105-122, 1990
 94. Waitzkin H: On studying the discourse of medical encounters. *Med Care* 28:473-488, 1990
 95. Hall J, Irish J, Roter D, Ehrlich C, Miller L: Gender in medical encounters: an analysis of physician and patient communication in a primary care setting. *Health Psychol* 13:384-392, 1994
 96. Brown J, Weston W, Stewart M: Patient-centered interviewing part II: finding common ground. *Can Fam Physician* 35:153-157, 1989
 97. Levenstein J, McCracken E, McWhinney I, Stewart M, Brown J: The patient-centered clinical method. 1. A model for the doctor-patient interaction in family medicine. *Fam Pract* 3:24-30, 1986
 98. Kravitz R, Cope D, Bhrany V, Leake B: Internal medicine patients' expectations for care during office visits. *J Gen Intern Med* 9:75-81, 1994
 99. DiMatteo MR: Health professional-patient communication: the effects on health behaviors. In *The Handbook of Health Behavior Research*. Gochman DS, Ed. In press
 100. Strull W, Lo B, Charles G: Do patients want to participate in medical decision making? *JAMA* 252:2990-2994, 1984
 101. Beisecker A, Beisecker TD: Patient information-seeking behaviors when communicating with doctors. *Med Care* 28:19-28, 1990
 102. Blanchard C: Information and decision-making preferences of hospitalized adult cancer patients. *Soc Sci Med* 27:1139-1145, 1988
 103. Cassileth B: Information and participation preferences among cancer patients. *Ann Intern Med* 92:832-836, 1980
 104. Ende J, Kazis L, Moskowitz M: Preferences for autonomy when patients are physicians. *J Gen Intern Med* 5:506-509, 1990
 105. Byrne P, Long B: *Doctors Talking to Patients*. London, Her Majesty's Stationery Office, 1979
 106. Katon W, Kleinman A: Doctor-patient negotiation and other social science strategies in patient care. In *The Relevance of Social Science for Medicine*. Eisenberg L, Kleinman A, Eds. Reidel Publishing Company, 1980, p. 253-379
 107. Price M: Qualitative analysis of the patient-provider interactions: the patient's perspective. *Diabetes Educ* 15:144-148, 1989
 108. Anderson R, Fitzgerald J: The relationship between diabetes-related attitudes and patients' self-reported adherence. *Diabetes Educ* 19:287-292, 1993
 109. Rost K, Carter WI: Introduction of information during the initial medical visit: consequences for patient follow-through with physician recommendations for medication. *Soc Sci Med* 28:315-321, 1989
 110. Kravitz R: Effect of method on elicitation of patients' expectations (Presentation). *Picker/Commonwealth Scholars Conference*, April 1995
 111. Taira D, Seto T, Safran D, Harvard School of Public Health, New England Medical Center and Beth Israel Hospital BM, West Roxbury VAMC WR M: The impact of resource utilization and patient participation on patient ratings of ambulatory care. *J Gen Intern Med* 10:84, 1995
 112. Brody DS, Miller SM, Lerman CE, Blum MJ, Smith DG: Patient perceptions of involvement in medical care: relationship to illness, attitudes and outcomes. *J Gen Intern Med* 4:506-511, 1988
 113. Mishler E, Clark J, Ingelfinger J, Simon M: The language of attentive patient care: a comparison of two medical interviews. *J Gen Intern Med* 4:325-335, 1989
 114. Hornberg J: The economics of addressing patients' concerns (Presentation). *Picker/Commonwealth Scholars Conference, Workshop 202*, April 1995
 115. Benett IJ: What do people with diabetes want to talk about with their doctors? *Diabetic Med* 10:968-971, 1993
 116. Braddock C: Frequency and quality of informed consent in routine office visits (Abstract). *J Gen Intern Med* 10:106, 1995
 117. Weinstein M, Feinberg H: *Clinical Decision Analysis*. Philadelphia, Saunders, 1980
 118. Lazare A, Eisenthal S, Wasserman I: The customer approach to patienthood. *Arch Gen Psychiatry* 32:553-558, 1975
 119. Benarde M, Wilde E: Patient-physician negotiation. *JAMA* 239:1413-1415, 1978
 120. Gerrity M, Earp J, DeVillis R, Light D: Uncertainty and professional work: perceptions of physicians in clinical practice. *AJS* 97:1022-1051, 1992
 121. Anderson R: Is the problem of noncompliance all in our heads? *Diabetes Educ* 11:31-34, 1985
 122. Bain DJG: Doctor-patient communication in general practice consultations. *Med Educ* 10:125-131, 1976
 123. Hooper E, Comstock L, Goodwin JM, Goodwin JS: Patient characteristics that

- influence physician behavior. *Med Care* 20:630-838, 1982
124. Carter WB, Inui I, Kukill W, Haigh V: Outcome-based doctor-patient interaction analysis. II. Identification of effective patient and provider behavior. *Med Care* 20:550-566, 1982
125. Pendelton L, House W: Preferences for treatment approaches in medical care. *Med Care* 22:644-646, 1984
126. Ruzicki D: Relationship of participation preference and health locus of control in diabetes education. *Diabetes Care* 7:372-377, 1984
127. Wikblad K: Patients' perspectives of diabetes care and education. *J Adv Nurs* 16:837-844, 1991
128. Hulka B, Kupper L, Cassel J, Mayo F: Doctor-patient communication and outcomes among diabetic patients. *J Community Health* 1:15-27, 1975
129. Hall JA, Irish JT, Roter DL, Ehrlich CM, Miller LH: Gender in medical encounters: an analysis of physician and patient communication in a primary care setting. *Health Psychol* 13:384-392, 1994
130. Erzinger S: Communication between Spanish-speaking patients and their doctors in medical encounters. *Cult Med Psychiatry* 15:91-110, 1991
131. Conrad B, Betschart J, Harris M: Frequency and determinants of diabetes patient education among adults in the U.S. population. *Diabetes Care* 17:852-858, 1994
132. Glasgow R, Toobert D, Hampson S: Participation in outpatient diabetes education programs: how many patients take part and how representative are they? *Diabetes Educ* 17:376-380, 1991
133. Roter DH: Studies of doctor-patient interaction. *Annu Rev Public Health* 10:163-180, 1989
134. Greenfield S, Kaplan S, Ware J: Patients' participation in medical care: effects on blood sugar control and quality of life in diabetes. *J Gen Intern Med* 3:448-457, 1988