How Do Providers Assess Antihypertensive Medication Adherence in Medical Encounters?

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BACKGROUND: Poor adherence to antihypertensives has been shown to be a significant factor in poor blood pressure (BP) control. Providers' communication with patients about their medication-taking behavior may be central to improving adherence.

OBJECTIVE: The goal of this study was to characterize the ways in which providers ask patients about medication taking.

DESIGN: Clinical encounters between primary care providers and hypertensive patients were audiotaped at 3 Department of Veterans' Affairs medical centers.

PARTICIPANTS: Primary care providers (n=9) and African-American and Caucasian patients (n=38) who were diagnosed with hypertension (HTN).

APPROACH: Transcribed audiotapes of clinical encounters were coded by 2 investigators using qualitative analysis based on sociolinguistic techniques to identify ways of asking about medication taking. Electronic medical records were reviewed after the visit to determine the BP measurement for the day of the taped encounter.

RESULTS: Four different aspects of asking about medication were identified: structure, temporality, style and content. Open-ended questions generated the most discussion, while closed-ended declarative statements led to the least discussion. Collaborative style and use of lay language were also seen to facilitate discussions. In 39% of encounters, providers did not ask about medication taking. Among patients with uncontrolled HTN, providers did not ask about medications 33% of the time.

CONCLUSION: Providers often do not ask about medication-taking behavior, and may not use the most effective communication strategies when they do. Focusing on the ways in which providers ask about patients' adherence to medications may improve BP control.

KEY WORDS: hypertension; medication adherence; provider-patient communication.
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Hypertension (HTN) affects more than 29% of the adult population[1,2] and increases the risk for adverse outcomes. Effective treatment of HTN has been shown to reduce this risk,[3,4] yet studies have consistently shown that most patients with established HTN have poorly controlled blood pressure (BP)[5,6] and that 30% to 70% of patients do not take their BP medications as prescribed[1,7–9].

Poor adherence may be partially due to problems of access and cost of medication, however, patients' beliefs about HTN and medication may also play a significant role. In a national survey, hypertensive patients reported that they discontinued antihypertensive therapy because they believed that they were cured (46%) and thought that they had been advised to stop by their provider (25%).[10] Patients' nonadherence to medications has been attributed to both intentional (i.e., a conscious decision not to take medications) and unintentional (i.e., a failure to take medications due to poor understanding or forgetfulness) reasons.[11] And yet, providers may be unaware of patients' medication-taking behavior and patients' understanding of how to use medications. Without this information, it is difficult for providers to distinguish between drug efficacy problems and medication adherence issues. Effective communication is key to providers' assessment of patients' adherence to medications.

A patient-centered approach in which the provider engages the patient in a process of shared decision making has been identified as an important factor in improving patient adherence.[12–14] Studies of patient-physician communication about medication-taking have found little evidence of joint patient and physician involvement in decision making and information sharing during consultations about medications,[14] and a dearth of in-depth questioning of patients about their medication taking behaviors.[15]

One effective communication strategy which has repeatedly helped improve clinical outcomes such as treatment adherence is "patient-centered counseling."[16] This multifaceted strategy fosters clinicians' abilities to identify barriers to treatment adherence relevant to each individual patient.[16] In this paper we focus on one specific facet, provider's assessment of a patient's medication adherence, which we posit as a crucial element for effective decision making about HTN management. We define an effective communication strategy as one that elicits detailed information from the patient about how he/she is taking his/her antihypertensive medications. Although asking questions is a core feature of providers' clinical assessments, little research has focused on *how* questions are asked. Fifteen years ago, Steele et al.,[17] examining conversations about HTN medications, found that using direct and information-intensive approaches to assessing adherence were more effective than indirect approaches in detecting adherence problems, yet it is not clear how the growing literature and emphasis on

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patient-physician communication may have influenced contemporary interactions.

We conducted a study to examine the ways in which providers ask patients about medication taking in clinical encounters using a qualitative sociolinguistic approach to analyze audiotapes of naturally occurring clinical encounters.[18,19] We conducted an in-depth analysis of the forms of language used by providers in order to characterize the different communication strategies that they used to ask about patients' medication-taking behavior, how patients responded, and the relationship between these strategies and patients' BP control.

METHODS

The data were collected as part of the Physician Intervention to Improve Control of Hypertension (PITCH) project, funded by Department of Veterans Affairs, HSR&D. The goal of the PITCH project was to assess the impact of a provider intervention to improve communication with patients about HTN. In this paper we report the results from analyses of baseline audiotaped patient-provider encounters before implementation of the intervention.

Participants

Participants were recruited in primary care clinics at 3 large urban Veterans' Affairs Medical Centers. Patients who were African American or Caucasian and had a documented diagnosis of HTN in at least 2 encounters in a single calendar year were eligible for the study. A convenience sample of eligible patients who presented in the clinic for a non-urgent primary care appointment during the recruitment period were approached by a research assistant and asked to have their appointment audiotaped. We recruited equal numbers of African-American and Caucasian patients. Providers were approached by study investigators at each site and were eligible to participate if they were primary care physicians, physician assistants, or nurse practitioners participating in the parent project, and were the treating provider for enrolled study participants. Three providers from each site were audiotaped in clinical encounters with a total of 39 patients (9 to 15 patients per site); logistical considerations required we stop recruitment at this point. The Institutional Review Boards at all 3 institutions approved the study and all patients and providers provided written informed consent.

Data Collection

We audiotaped primary care visits of hypertensive patients with their providers. Providers and patients were told that they were participating in a study to examine communication between patients and providers. Research assistants set up a tape recorder in the exam room, started the recording, and left the room. Electronic medical records were reviewed after the visit to determine the BP measurement for the day of the taped encounter.

Analysis. All encounters were transcribed verbatim. Through a process of open inductive coding, we identified 23 different communication activities related to HTN–that is, any communication sequence in which HTN or BP was referenced. We then identified segments in which the provider asked the patient how s/he was taking prescribed medications and called this activity, "taking medication." One investigator, an expert in sociolinguistic analyses (B.B.), examined these segments and sub-coded the provider's utterances based on sociolinguistic discourse markers and structure,[19] including (1) the structure, i.e., the use of interrogatives versus declaratives and the use of open-ended versus closed-ended statements; (2) the verb form indicating temporality (assessment of general behavior vs. specific time-limited behavior); (3) the content of language used; and (4) the style of interaction. The content was categorized based on types of terminology used in discussing medication. The style of interaction was identified by the ways in which the provider responded to patients' expressed problems or concerns. Based on these analyses, we developed a taxonomy of communication strategies that providers used to ask patients about their medication-taking behavior. A second investigator (N.K.) reviewed coded segments and, through iterative consensus, agreed upon the taxonomy. We also examined the content and extent of patient responses to different ways of being asked about medication-taking behaviors. Patient's BP control was determined to be either controlled ($<140/90$) or uncontrolled ($>140/90$), and we examined the different strategies used in these 2 groups.

RESULTS

One encounter was eliminated from analysis due to poor audio quality, leaving a total of 38 dialogs for analysis. Patients (Table 1) were all male with an average age of 65.9 years. More than two-thirds had graduated from high school and 39% had some level of higher education. Patients were largely poor, with over 42% earning $20,000 or less per year and 37% earning between $20,001 and $40,000. Fifty percent self-identified as African American and 50% self-identified as Caucasian.

There were 15 interactions (39%) in which no segments of text were coded "taking medication." At no time during these encounters did the providers ask about their patients' medication-taking behavior. In 2 cases there was no discussion about HTN at all. In the others, communication about HTN included explanations of HTN and its sequelae, provision of new prescriptions for medications, and discussions of diet and exercise to control HTN. In the 23 remaining encounters (61%), there was at least 1 instance of asking about medications. Below we describe the communication strategies providers used in these encounters to ask about medication-taking behavior.

Table 1. Patient Characteristics ($n=38$)

Male (%)	100%
Age	
Mean (SD)	65.9 (11.5)
Race (%)	
African American	50% ($n=19$)
Caucasian	50% ($n=19$)
Education	
Mean (SD)	12.1 y (2.6)
< High School	26% ($n=10$)
High School diploma	37% ($n=14$)
Some higher education	37% ($n=14$)
Annual Income	
$20,000 or less	42% ($n=16$)
$20,001 to $40,000	39% ($n=15$)
$40,001 to $80,000	8% ($n=3$)
Missing data	11% ($n=4$)

Communication Strategies Used for Assessing Medication-Taking Behavior

We examined 4 dimensions that characterize how providers ask patients about their medications based on: (1) structure, (2) temporality, (3) content of the question(s), and (4) style. We discuss excerpts from 3 different encounters that illustrate these dimensions (Table 2). We then briefly discuss how medication is talked about in the remainder of the encounter.

Structure

We identified 6 different linguistic structures that providers used to ask patients about medications. We first identified whether the "asking" was open or closed ended. We then identified whether the asking was in the form of a question (interrogative) or in the form of a statement (declarative). Table 3 outlines the taxonomy of ways of asking by identifying (1) the type of question and (2) the possible types of response facilitated. Generally speaking, open-ended questions require patients to give information, whereas closed-ended questions require single word answers only, often yes, no or a simple number.

Closed-Ended Questions

Many providers directly asked patients about their medication taking using an interrogative closed-ended form of questioning, such "are you taking," "do you take," and "did you take." Patients often replied with a single word response, yes or no, providing little additional information about their use and understanding of antihypertensives.

In 12 interactions, providers used only declarative and closed-ended questions such as "so you are taking," or "so you took." This strategy is "leading" in that patients may perceive the statement as an assumption of fact, therefore finding it difficult to negate or contradict. This can be seen in example 1 (Table 2). The provider initiates this sequence with a question about having trouble taking medication (line 1), an important aspect of patient-centered communication. However, when the patient replies "no," the provider does not assess whether the patient is actually taking his medication as prescribed. Note that "so you are taking," is made as a statement rather than posed as a question. Although the provider lists the medications, he does not ask the patient to confirm that he had been in fact taking these medications. The patient responds with "yes," simply indicating agreement with the provider. He provides no detailed information about whether he knows which pills are which, or how much or how often he is taking 2 of the medications.

The provider likely leaves this conversation believing that the patient is adherent to his medication due to the "agreement." It is not clear, however, that the patient is accurately or consistently taking his medication based on the information provided in this encounter.

Open-Ended Strategies

In contrast, an interrogative, open-ended question, such as "which medications are you taking" or "how often" or "when," is treated as a request for the patient to provide information. This type of question requires more than a yes/no response from the patient. In all 5 instances where the "which medications" strategy was used, patients replied with multiple word answers, which in turn generated a discussion of how they were taking their medication. In example 2, the patient has controlled BP of 138/70 and the provider assesses how much of each medication the patient was taking, when he was taking it and if he knows when to take the different medications that were prescribed. The patient does not identify names of the medications; however, he is clear about which pills he has been taking. In lines 6 to 9, the provider discovers that the patient has not been taking the second dose of 1 medication. This more complex response allows the provider to evaluate whether the patient is knowledgeable about the medication he is taking and helps her assess if the patient is taking the medication as prescribed.

Using more than 1 communication strategy to ask about medication-taking behavior was also effective in eliciting information from the patient. This is demonstrated in example 3 in which the patient's HTN is clearly out of control (BP 188/114). Having examined the pharmacy refill data accessible through the computerized patient record, the provider sees that the patient has not been refilling the prescriptions, leading to extensive probing of the patient's medication-taking behavior.

This provider begins by asking if the patient is taking his medication (line 1, strategy 1). He continues by asking how many different kinds of medication the patient is taking (line 5, strategy 6), and follows up with questions about how often the medication is being taken (lines 20 and 42; strategy 5) and when (lines 9, 13, and 15; strategy 2). At this point the provider is aware that the patient is not taking his medication as prescribed. Later, he asks directly about medications and follows up with a more declarative statement to confirm the behavior (line 40, strategy 4).

Through the use of multiple strategies, the provider is able to assess the patients' medication-taking behavior, and to identify potential reasons for the lack of BP control, and plan intervention accordingly. After this interchange the provider asks the patient about problems he is having taking medication, explains the potential impact of HTN on the patient's health, makes changes to the medication, providing written instructions to the patient, and arranging for follow-up. Near the end of the appointment, the provider reiterates the medication plan, and is explicit with the patient that no change will be made because "we're not sure exactly that you've been taking your medicines every single day, day in and day out."

Temporality

The temporal nature of the question asked was identified based on the form of the verb used—an infinitive form (-ing) indicating a general behavior, versus a past tense form (did) indicating a single event (see Table 3). In all 3 examples, the providers begin with questions about patients' general, time unlimited behaviors with respect to medication taking, i.e., "are you taking." Only when the provider in example 3 finds that he cannot reconcile the information he is getting from the patient with the information he has on the medical record does he shift to asking about time-specific medication taking, i.e., "did you take it this morning." He thereby gains information about the patient's actual behavior.

Table 2. Examples of Asking About Medications and Associated Findings

Example 1	
1 PR: So, are you having any problems with any of your heart – your blood pressure medications?	*Structure*: Closed and Declarative *Temporality*: Unlimited
2 PT: No.	*Content:* Medical terminology, but reframes using lay terms
3 PR: No? Okay. So, if it ain't broke, we're not going to fix it. Okay. You're still taking the Amlodipine, Isordil. What else? And the Metoprolol. Those are your three blood pressure medicines.	*Style*: Neutral *Patient response:* Single word, yes/no *Blood pressure:* 139/85
4 PT: Yes.	
5 PR: They're okay. And the Metoprolol? Let's see. All those have been – all those have at least a couple of refills on them. And the Metoprolol you're taking half a tab a day?	
6 PT: Yes	
7 PR: Okay	
Example 2	
1 PR: So right now, in the morning, which pills are you taking? Do you know?	*Structure*: Open & Interrogative
2 PT: Well, I take my high blood pressure pills.	*Temporality*: Unlimited
3 PR: Which ones, 'cause you're on a bunch of them now?	*Content*: Lay terminology
4 PT: I take that little square one, as you said.	*Style:* Collaborative
5 PR: Right. Now do you take one dose or two of those little square ones?	*Patient response:* Descriptive of pills and how medications are taken
6 PT: You – it says only one a day. One.	
7 PR: Right. But you're supposed to take a 20 milligram one and a 40 milligram one. Do you take both of those or do you just take one pill?	*Blood pressure:* 138/70
8 PT: I – I take – I just take one square one.	
9 PR: One square one. And how about the round one? Are you taking the round one still?	
10 PT: The round one, yeah. And then I take one aspirin.	
11 PR: And how about at bedtime?	
12 PT: I take the one that's marked for bedtime, I take that.	
Example 3	
1 PR: Are you taking all of your blood pressure medicines?	*Structure*: Mixed closed and open-ended
2 PT: Yeah, I've been taking them.	*Temporality*: mixed unlimited and limited
3 PR: You got them with you?	*Content*: Lay terminology, but reframes using medical terminology
4 PT: No.	
5 PR: How many different kinds of medicines are you taking?	*Style*: Not collaborative; confrontational
6 PT: About 9.	*Patient response:* Few word responses, attempts to discuss problems with medication-taking
7 PR: Now, almost all of them have not been refilled since August. You had a refill available. Did you know that?	*Blood pressure:* 118/114
8 PT: I don't (inaudible)	
9 PR: When was the last time you took your blood pressure medicine?	
10 PT: This morning.	
11 PR: This morning? You didn't have any period when you weren't taking it?	
12 PT: (inaudible) sick probably, I didn't, sleeping at night you know.	
13 PR: So did you take it yesterday?	
14 PT: In the evening.	
15 PR: How about the day before?	
16 PT: I don't know because I was sick, I was really sick (inaudible). I mean I didn't know (inaudible)	
17 PR: Because it should have only, if you got it filled in August and it was a 90 day supply, August, September, October, November. It should have been out two months ago, if you were taking it every day.	
18 PT: No.	
19 PR: Do you miss it pretty often?	
20 PT: No. I have a feeling, I got a feeling (inaudible)	
A little later on, after the provider takes the blood pressure and notes that it is high, he continues:	
40 PR: And you took Lisinopril, Hydralazine, Felodipine, did you take all three of those?	
41 PT: (inaudible)	
42 PR: How many times a day are you taking your Hydralazine?	
43 PT: One.	
44 PR: Okay, that's supposed to be three times a day.	
45 PT: Okay.	
46 PR: Now, that one you have to take three times a day. You know, we've tried doing it with other medicines that you didn't have to take so often in the past, but they haven't worked so that one you have to take three times a day. Okay. That may be part of the problem right there.	

PR, Provider; PT, Patient.

Content

Providers differed in the extent to which they used medical jargon versus lay terminology in discussing medications. In example 1, the provider discusses medications by appearance rather than name ("the little square pills"), thereby using lay, rather than biomedically specific language. He does mention the number of milligrams but then reverts to talking about the pills in a lay manner. In contrast, the providers in examples 2 and 3 only use the generic names of medications, names that may be unfamiliar to the patient and difficult to recall. These providers do discuss dose and frequency according to the number of pills and times per day, which may be easier for patients than discussions of milligrams.

Table 3. Ways of Asking About Medication Taking

Strategy	Question Asked	Type of Question	Temporality	Possibility for Response
Closed-ended questions				
1	Are you taking X? Do you take X?	Interrogative Yes/no question	Temporally unlimited	Requires yes/no response. Little opportunity for patient to discuss medication-taking behavior
2	Did you take X?	Interrogative Yes/no question	Temporally limited	Requires yes/no response. Little opportunity for patient to discuss medication-taking behavior
3	So, you are taking X, Y and Z medications. 1. rising intonation ("?") 2. falling intonation (".")	Declarative 1. positive assumption/neutral expectation 2. positive assumption/positive expectation Closed-ended	Temporally unlimited	1. Patient perceives expectation of adherence therefore is difficult to negate (i.e., well, no actually I'm not). 2. Patient perceives provider making statement of 'fact' and therefore even harder to negate
4	So you took X [this morning]	Declarative	Temporally limited	Requires yes/no response. Positive assumption presented, therefore difficult to negate
Open-ended questions				
5	Which medications are you taking for your blood pressure?	Interrogative	Temporally unlimited	Requires patient to provide information, thereby allowing provider to assess patients' knowledge of medication
6	How often are you taking your X medication?	Interrogative Restricted to a number	Temporally unlimited	Requires patient to tell how often, but does not assess patients' knowledge of medication types

Temporality: unlimited, assessing usual behavior;.
Limited: assessing behavior of a specific kind and time.

Style of Questioning

Provider styles varied according to how collaborative the interaction was. Collaborativeness was defined as the ways in which the provider followed up on patients' utterances and concerns and subsequently focused on the patients' communication. In example 2, the provider asks if the patient knows which medications he is taking and follows up by asking for specifics, and provides a rationale for asking in line 3. Further the provider pays close attention to the responses of the patient and follows-up on the patients' cues to talk about medication by color and shape. As the encounter continues, the provider asks the patient to bring his pills to a follow-up appointment with a nurse so that she can further monitor his medication taking and review his medications at that time. The provider elicits the patient's involvement in assessing his medication-taking behavior and provides a more collaborative interaction.

In example 1, the interaction is less collaborative. The provider begins by asking about problems the patient might be having taking medications. This strategy could build collaboration, but the topic is quickly closed by the provider's use of the declarative form of questioning.

Example 3 may be construed as least collaborative. In line 7, the provider challenges the patient's statement that he has been taking his medications by saying that he sees the medication has not been refilled. Importantly, the patient twice tries to give information about being sick, and potentially how that may have interfered with his medication taking. However, the provider does not address this concern and continues questioning the patient about his medications. By not attending to the patient's concern here, the provider forgoes an opportunity to see if the patient's apparent nonadherence is intentional or non-intentional. If the provider had followed-up by asking about problems taking medications, he would have gained the needed information for good prescribing, and may have further been able to assist the patient to take his medication in the future.

Following Up

Even when providers did ask in some format about medication taking, they often did not follow-up by seeking information about barriers to taking medication as prescribed. In a few instances, providers asked about side effects patients were having or problems with paying for medications. None of the providers asked questions about patients' beliefs about medications or about their understanding of HTN. Rather the tendency was for providers to be directive, instructing patients, in some instances multiple times, about the importance of taking antihypertensives, providing rationale for changing medications and giving instructions regarding how to take them.

Asking About Medication Taking and BP Control

Table 4 shows how often patients who had controlled versus uncontrolled BP were asked about medication taking. In 9/15 (60%) encounters in which the provider did not ask the patient about his medication taking, the patient's BP was uncontrolled (i.e., $<140/90$) that day. Although providers were somewhat more likely to ask about medications when BP was uncontrolled (67%), 33% of those with uncontrolled BP were never asked about medication taking.

Table 5 shows how often providers used different asking strategies with patients who had controlled versus uncontrolled BP. When BP was uncontrolled, providers used declarative, closed-ended statements to ask about medications 55% of the time and interrogatives only 45% of the time. Within the interrogatives, providers asked open-ended questions regardless of the level of BP control. Closed-ended interrogatives (i.e., "did you take" or "are you taking") were used as a primary tool only when BP was uncontrolled.

DISCUSSION

Patients often do not adhere to prescribed antihypertensive medications. We have described how one aspect of provider

Table 4. Number of Patients Asked/Not Asked About Medications and Whether or Not BP Was Controlled ($n=38$)

	Total	Controlled	Uncontrolled
Total		11 (29%)	27 (71%)
Asked	23 (61%)	5 (45%)	18 (67%)
Not asked	15 (39%)	6 (55%)	9 (33%)

communication—asking about patients' medication-taking behavior—may influence the kinds of information patients provide. Almost 40% of those with a diagnosis of HTN were not asked at all about how they took their medication and 1/3 of these patients had uncontrolled HTN. Even when patients' HTN was uncontrolled, providers often did not directly ask about medications, discussing other aspects of HTN management instead. As a result, providers were less likely to be able to determine whether uncontrolled HTN was due to ineffective medication or poor adherence to potentially effective medications.

When providers did ask about medication taking, they sometimes used approaches that were not optimal for obtaining detailed information about adherence. We identified 4 dimensions of provider inquiry based on the structure, temporality, content and style of asking. The linguistic structure of questions can either facilitate or inhibit the amount and kind of information patients offer the provider. More closed-ended and declarative questions may make it difficult for patients to supply extensive information about their medications. Although we recognize that patients may not always tell the truth about their medication-taking behavior, we believe that some proportion of agreement with the provider's description of medication dosage and frequency may be due to the form the question takes and lack of a collaborative communication style. Providers may be able to better assess adherence by asking interrogative, open-ended questions, using strings or sequences of questions, and collaborating by following up on patients' concerns. Asking patients to report on time-limited behaviors may further supply information to providers about what patients are actually doing with regard to medication taking. These strategies may lead to a more in-depth discussion of patients' beliefs about medications, problems they are encountering taking medications, and ultimately to better adherence.

Patients' responses to questions may be affected by other aspects of provider communication. When providers ask about medications by their pharmaceutical names, patients may get confused. In contrast, study providers who asked about medications by describing the color and size of each pill elicited detail from the patients about how they took their medications. This alternative practice may improve the patient's ability to accurately report and the provider's ability to accurately assess adherence. This may be especially important for patients with low health literacy.[20–22] In addition, provider communication styles, such as the challenging style in example 3, may be detrimental to creating a therapeutic alliance with patients.[23,24]

Table 5. Ways of Being Asked About Medications and Whether or Not BP Was Controlled.

Type of Question	Controlled	Uncontrolled
Open-ended, interrogative (i.e., Which, how often)	4 (80%)	3 (17%)
Closed-ended, interrogative (i.e., Are you, did you)	0 (0%)	5 (28%)
Closed-ended, declarative (i.e., So you are)	1 (20%)	10 (55%)
Total	5 (100%)	18 (100%)

Number Indicates when Question Type was used as Sole or Primary Type ($n=23$).

The strategies described in this paper are a point of departure for understanding one aspect of HTN care, the prescription and taking of antihypertensives. As noted by Steele et al.,[17] direct and information intensive approaches may be most effective in detecting adherence, however, we found also that consideration of the linguistic structure of the questioning as well as its style and content may impact upon how patients respond to providers' questions. Patient factors, such as level of education and patient beliefs about medication, may also contribute to problems communicating about medication taking.[25] Analyses of patient-provider communication in the future will shed more light on the ways in which providers' communication strategies facilitate or hinder patients' adherence to medications as prescribed.

Many of the practices we observed reflect a provider-centered and medically centered model of disease management. Effective communication has been described as one in which a relationship-centered provider jointly partners with patients to make decisions and explore their perspectives.[26,27] Discussing patient illness representations has been shown to improve hypertensive patients' viewpoints on adherence.[12] Providers who focus solely on informing the patient of the medication regimen to be followed rely on a more profession-centered style of communication. The focus in many of the encounters we examined was on information *transfer*—giving information about medications to the patient—rather than information *exchange*, in which the provider and patient have a 2-way exchange and collaboratively discuss patient perspectives on medications.[28] Providers' focus on informing rather than on assessing patients' medication-taking behavior, or the extent to which the patient buys into this "contract," may lead to an inaccurate decision that medications prescribed are ineffective, when in fact the patient is not taking the medication as prescribed.

This study has several important limitations. We are reporting on the behavior of only 9 providers, all of who were practicing in Veterans' Affairs clinics. As such we do not know if the interactions we observed generalize to all physicians. In addition, all of the patients were men and communication patterns may differ with women. It is possible that the behaviors we observed were the result of a Hawthorne effect resulting from the fact that providers and patients were aware of the presence of the tape recorder and our interest in communication. We nonetheless observed a wide range of interaction styles and communication behaviors, suggesting that neither providers nor patients were strongly inhibited. Similarly, if there was a selection bias in favor of providers with better communication skills, our finding that these physicians often did not elicit information from patients is actually a conservative test of this phenomenon.

This study also developed a method for describing how providers discuss adherence. The taxonomy may be useful in assessing provider-patient communication about a variety of health behaviors, including but not limited to medication

adherence. It could also prove useful in medical education and in further research about patients' self-management of chronic illness.

Taking medication as prescribed is most often discussed as compliance or adherence. Conrad,[29] however, implores us to reconsider this issue as one in which patients integrate taking medication into their daily lives. As the IOM[30] also notes, we must move toward a model in which patients' needs and concerns become the focus of the encounter rather than simply a transfer of information from provider to patient. Considering the social context of health and illness in which patients take medication makes sense and ultimately creates the conditions for communication and dialogue that will lead to collaboration and change.

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