

Brief Motivational Interviewing to Improve Adherence to Antiretroviral Therapy: Development and Qualitative Pilot Assessment of an Intervention

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ABSTRACT

Because successful HIV treatment requires exceptional adherence to antiretroviral therapy (ART), interventions to improve ART adherence are essential. We developed and pilot-tested an intervention to improve ART adherence, based on brief motivational interviewing (MI), which has successfully improved selected health behaviors but has not been tested for ART adherence. We administered the 15- to 30-minute MI session to 20 HIV-positive adults and assessed its usefulness and relevance. Then, we content-analyzed the session for HIV care issues and strategies most salient to patients in the MI session. During the session, all participants chose an HIV-care-related topic that they wanted to discuss, and talked about issues, barriers, and facilitators related to their topic. Most participants (70%) developed strategies to help improve their health. Questions asked after the MI session revealed that almost all (95%–100%) participants found the session useful and helpful. This theoretically based, empowering health counseling approach for HIV-positive persons warrants further research.

INTRODUCTION

ALTHOUGH THE RECENT extensive use of combination antiretroviral therapy (ART) has substantially reduced morbidity and mortality resulting from AIDS, its therapeutic benefits are limited by people's inability to closely adhere to complex regimens.^{1–6} Understandably, most patients undergoing ART are unable to achieve the high levels of adherence that are believed to be necessary to maintain treatment success.^{1,4–9} As a result, interventions to help patients take antiretroviral medications are imperative in providing optimal care for persons living with HIV, but few effective ART adher-

ence interventions have been identified. Because medication adherence is a complex behavior with multiple determinants, to be effective, adherence interventions need to be comprehensive and address a broad range of social and behavioral factors.^{5,9–16}

Motivational interviewing (MI) is a client-centered, goal-directed counseling style originally developed to treat substance abuse and later adapted to facilitate a broader spectrum of health behavior changes.¹⁷ MI has been effective for increasing fruit and vegetable intake, treating substance abuse, reducing smoking, and helping people increase exercise activities.^{17–19} The present study, however, is one of

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the only reports describing the use of brief MI to improve ART adherence.

MI does not follow an invariant structure but includes five counseling techniques aimed at helping clients resolve ambivalence about a health behavior: (1) expressing empathy; (2) developing discrepancy; (3) avoiding argument; (4) rolling with resistance; and (5) supporting self-efficacy.¹⁷ MI is based on the premise that a patient's readiness for behavior change is not a fixed characteristic of the person, but a fluctuating factor that can be altered as a result of an interaction with a counselor.²⁰ The researchers who first developed MI found that the confrontational style commonly used in health care settings often reduced people's readiness and self-efficacy to change a health behavior.²⁰ In contrast, by avoiding confrontation and stressing a partnership between patient and counselor, the techniques used in MI enhance the client's motivation and confidence to change.²⁰ Because of the tailored nature of this cognitive-behavioral approach, MI offers a potential means to address the complex, multidimensional nature of medication adherence behavior.

As part of a larger multicomponent intervention, we developed and pilot-tested a theoretically based MI session for ART adherence. The pilot study we report here had three goals: (1) to assess the usefulness and flow of a standardized, brief MI session to counsel patients about taking their ART; (2) to content-analyze audiotaped motivational interviews for issues related to HIV care that patients raised as salient in the context of the health counseling session; and (3) to assess patients' perceptions of and attitudes toward the motivational interviewing session.

METHODS

Conceptual model

More than 200 factors related to medication adherence have been identified and many ways of categorizing these factors have been suggested. Four major categories suggested by multiple authors are: (1) characteristics of the patient, (2) features of the regimen, (3) aspects

of the patient-provider interaction, and (4) conditions of the social environment.^{10,11,21} Based on a review of the literature, as well as prior qualitative and quantitative observational studies about medication taking among persons living with HIV, Golin et al.^{11,22-24} modified a previous conceptual model of treatment adherence to identify determinants of medication-taking for HIV. This revised model, shown in Figure 1, integrates social cognitive theory with empirical studies of ART adherence to suggest that patients' adherence is affected by both their motivation and self-efficacy, or confidence in their ability, to take the medication.^{5,7,12-15,25,26} Furthermore, motivation and self-efficacy are influenced by multiple factors within the four categories reported above. Each factor in the model can reciprocally influence the others. This model was used as a conceptual basis for developing the semistructured motivational interviewing guide.

Development of a brief motivational interviewing session

Over several months, the research team underwent a series of Motivational Interviewing Network of Trainers (MINT)-conducted workshops to obtain expertise in motivational interviewing. Using the conceptual model and MI techniques as a foundation, in consultation with several MINTs, we developed a semistructured motivational interviewing guide to be used to counsel people with HIV about ART adherence. We developed the guide in an iterative process that included pilot-testing among several other MI experts and social scientists for theoretical integrity and feasibility. Revisions were made based on their feedback. Once the MI guide was finalized (Fig. 2 shows an outline of the final script), interviewers underwent another series of workshops to practice using the MI counseling techniques in conjunction with this specific guide.

Because we based the guide on our conceptual model, the final script included ways to offer clients opportunities to discuss their motivation and self-efficacy to address an issue salient to their HIV care, as well as opportunities for the counselor to reflect back observations of this assessment to the patient in the

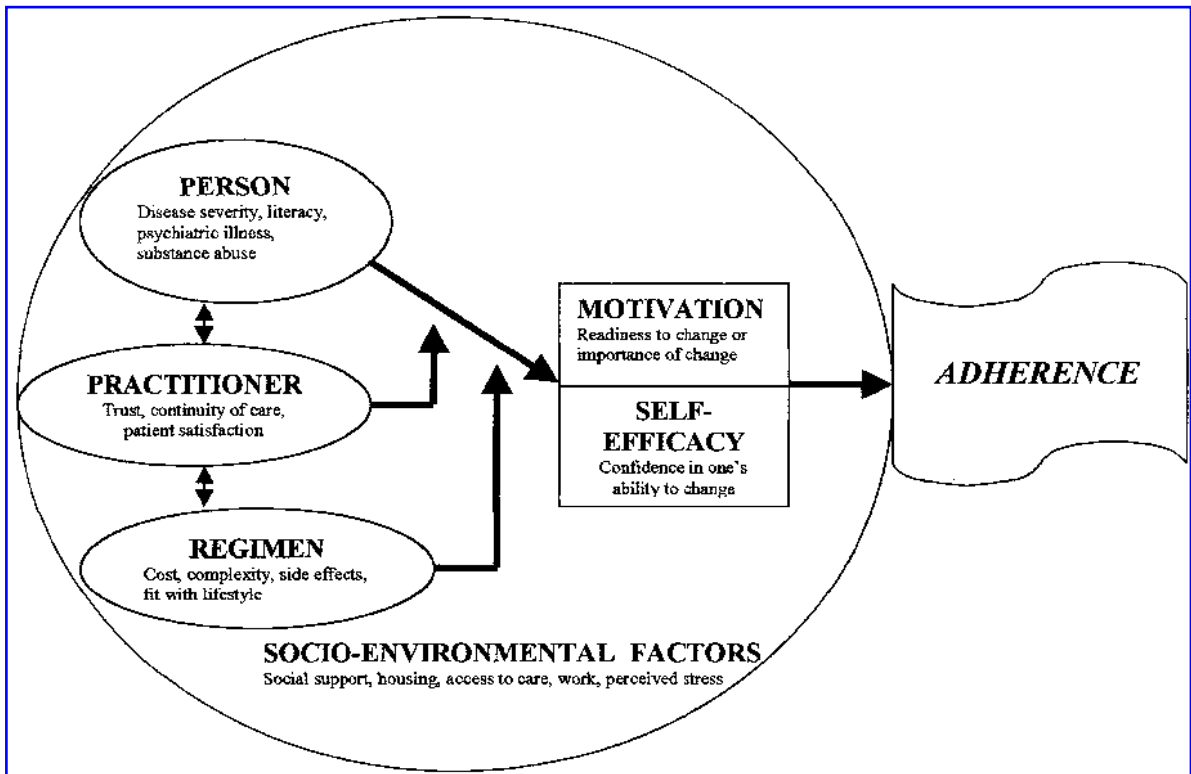


FIG. 1. Conceptual model of factors affecting adherence to antiretroviral therapy.

spirit of MI. We used our conceptual model to enhance counselors' understandings of the potential barriers and facilitators to medication-taking that their clients faced. Motivational interviewers were trained both to conduct brief motivational interviews as well as to understand issues pertinent to taking ART. Therefore, the session provided an opportunity for patients to recognize discrepancies between their medication-taking behavior and their own values as well as to identify and address specific barriers and facilitators to taking ART.

Sample

To pilot-test the MI session, we recruited a convenience sample of 20 HIV-positive patients during a routine medical visit to an infectious diseases clinic at a public tertiary care hospital. At the time of this pilot study, no other formal adherence programs or formal HIV education programs of any kind were offered to patients at this clinic. Two recruitment methods were used: (1) interested patients contacted us in response to a flyer that was placed

in a study notebook in the clinic waiting room and (2) clinic personnel asked patients who had previously consented to be approached about research studies. In both cases, clinic personnel paged the research team when a patient was available to participate in the study. Patients who had participated in a prior pilot study that assessed factors associated with ART adherence were not eligible to participate in this study. This research was reviewed and approved by the Committee on the Protection of the Rights of Human Subjects, the School of Medicine at the University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

Data collection

Three trained MI counselors collected all of the pilot data. The MI counselors conducted individual, face-to-face interviews prior to the MI session to assess patients' demographic and clinical characteristics. Because this pilot was part of a larger, multicomponent intervention, prior to the MI session, the patients listened to a health education audiotope with a workbook

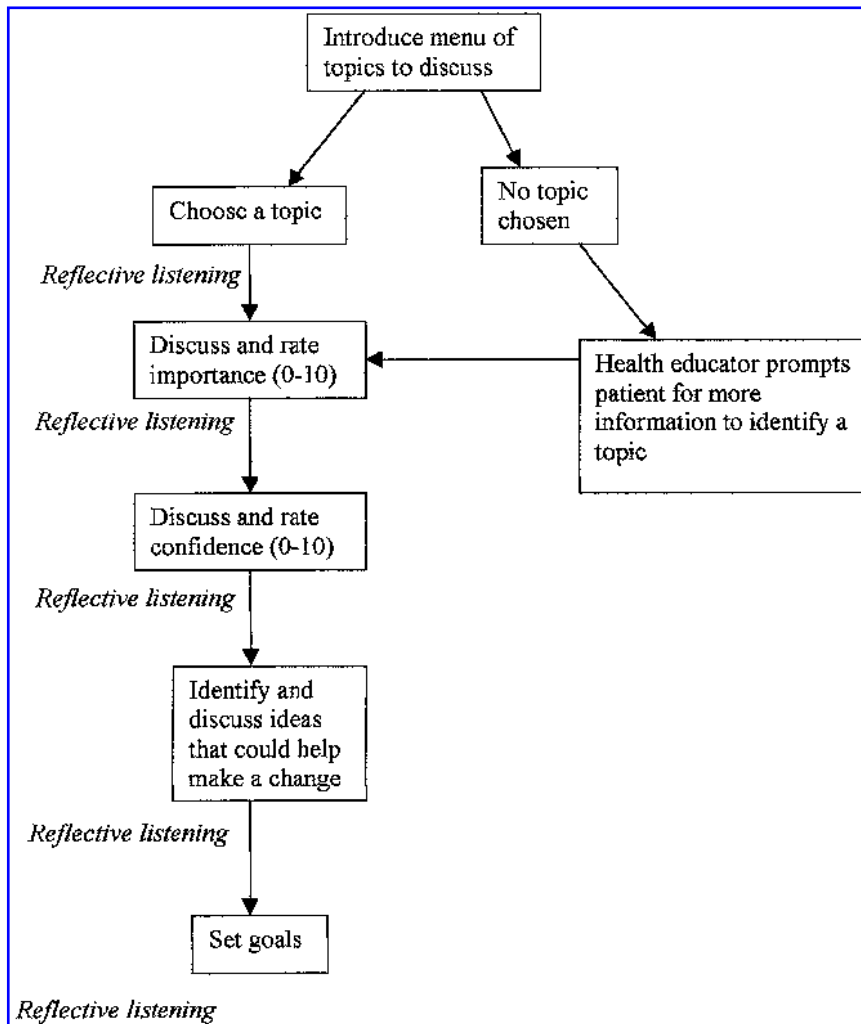


FIG. 2. Outline of motivational interviewing script.

about HIV and HIV care. After this, the counselor administered the MI intervention, recording field notes, while audiotaping the session for later transcription. After the MI, the counselor asked the participants open and closed-ended questions to obtain feedback on the patient's perceptions of the MI intervention. Participants were asked to rate the overall usefulness of the session, rate how much the session would help them to change their behavior, list things that they learned in the session, and provide general opinions regarding what they liked and disliked about the MI session. To reduce social desirability bias in participant responses, we used a standardized script that gave participants permission to critique the session and explained our need for honest feedback to make improvements to the session.

Data analyses

We used Microsoft Excel (Microsoft, Inc., Redmond, WA) to calculate descriptive statistics of participants' clinical characteristics, demographics, and reactions to the MI session. To conduct qualitative analyses of the session we used the CDC EZ-Text program (version 3.05, Centers for Disease Control, Atlanta, GA) because it had the capability to easily generate, manage, and analyze a semistructured database.²⁷ Transcripts of the audiotaped MI discussions were reviewed several times, first for accuracy and general understanding, then to identify categories, and finally to code text. Of the 20 interviews completed, 4 were not audiotaped because of equipment failure. Interviewer field notes were used for those 4 interviews.

Themes emerged from the data throughout the analysis rather than being specified *a priori*. These data were then grouped into categories based on the script format. A subsample of these interviews were later reviewed and analyzed by a second reviewer with 83% agreement on themes between reviewers.

RESULTS

Sample characteristics

Table 1 summarizes the demographic and clinical characteristics of the study participants.

Analysis of MI session for usefulness and flow

Because motivational interviewing sessions are client-centered, the length of these sessions depended upon the degree to which the client was willing to be open and freely chose to discuss these personal behaviors. These sessions

on average lasted for 20 minutes but ranged from 15 to 45 minutes in length.

A chief aim of this pilot study was to assess whether patients could fully engage in a discussion presented in this format. Content analysis of these discussions revealed that when participants were asked to choose a topic to talk about, 65% immediately identified one. The participants who did not immediately identify a topic attributed this to their initial feelings that they were already adequately tending to their health. However, after the counselor used standardized follow-up prompting questions, these participants also identified a topic related to their HIV care that they wanted to discuss. Half of all participants chose to discuss medication-taking and approximately one third chose to discuss the way that they talked to their doctor, 10% (2 participants) chose to discuss side effects, and 5% (1 participant) chose to discuss making decisions related to taking HIV medicines. During the brief MI session, all

TABLE 1. DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF PARTICIPANTS

Demographics (n = 20)	n	(%)		n	(%)
Gender			Household income		
Male	14	(70)	<\$15k	17	(85)
Female	6	(30)	≥\$20k	2	(10)
Ethnicity			Refused	1	(5)
African American	18	(90)			
Caucasian	1	(5)			
Multiracial	1	(5)			
Age					
Mean	39.65	(range, 32–49)			
Highest grade level completed			Type of health insurance		
<HS graduate	8	(40)	Medicare and Medicaid	6	(30)
HS or GED	8	(40)	Medicare only	1	(5)
Some college	3	(15)	Medicaid only	10	(50)
≥4-yr. college degree	1	(5)	Other programs	1	(5)
			Private insurance	0	(0)
			None	2	(10)
Work status			Clinical characteristics		
Some work	1	(5)	Mean (n = 6)	1228	
			(range, undetectable–68000)		
Unemployed	3	(15)	CD4		
Disability	14	(70)	Mean (n = 18)	416.6	
Other assistance	2	(10)	(range, 18–1500)		
			Health Status (categories provided)		
			Fair	8	(40)
			Good	7	(35)
			Very good	5	(25)

HS, high school; GED, General Equivalency Diploma.

participants were able to recognize and discuss barriers and facilitators to staying healthy, regardless of the topic they chose to discuss. Finally, 70% of participants identified specific strategies that they could use to stay healthy.

Content analysis of brief MI

Analysis of the MI interviews revealed several common areas of discussion that were organized into three overarching domains: (1) barriers to health, (2) facilitators to health, and (3) strategies for staying as healthy as possible.

Barriers to health. The barriers discussed in these sessions were primarily related to medication-taking. The three most commonly mentioned barriers were: (1) medication side effects (40%); (2) eating (40%); and (3) not having a schedule or routine for medication taking (30%).

Our data also revealed three additional barriers. First, some participants reported that symptoms and side effects due to other illnesses interfered with their ability to take their HIV medications. Second, several participants recognized that having to address multiple barriers at one time, in and of itself, was a barrier to medication-taking. For example, adjusting the timing of ART doses in relation to meals was more difficult for patients who, at the same time, suffered from side effects of the ART regimen. Finally, the uncertainty of potential future and long-term ART side effects concerned a number of participants as exemplified by this person:

Because I wanna know . . . if they do come up with a cure and . . . if I'm still living, and I been taking these medications . . . nobody knows how the drugs are gonna affect your body after they do come up with a cure. What kind of medical problems you gonna have from taking the medication for so long, you know . . . who knows what's gonna happen.

Similarly, several participants were distressed by the need to remain on these therapies indefinitely. One person explained:

It's not like a regular medicine where you stop taking it . . . This is a[n] ongoing thing . . . But you have to take these medicines for the rest of your life. . . . it messes with you psychologically.

Facilitators to health. During the MI interviews, participants also recognized many facilitators to staying as healthy as possible. The four most common facilitators were: (1) social support (50%); (2) a routine or schedule for medication-taking (35%); (3) the possibility of becoming sicker or developing AIDS (35%); and (4) a good relationship with their provider (30%).

Participants talked extensively about how social and emotional support helped them to stay healthy. They reported receiving social support from a wide variety of sources including support groups, family, friends, partners, spouses, and case managers: "HIV support groups help a lot . . . you need all the support you can get."

Many participants recognized that having a routine for taking their ART helped them follow their regimens. The possibility of becoming sicker helped remind several patients to take their medicines as exemplified by this participant: "Because if you miss a dose . . . that means that you could catch the AIDS."

Positive relationships with health care workers were frequently discussed; one person's views reaffirmed those of several, "I can talk to the doctor and ask him questions and if something don't feel right, I can tell him or if I'm feeling bad or something going on, I can let him know."

Strategies to improve health. Among the 70% of participants who identified a specific strategy to help them stay healthy, two common themes emerged. First, several thought that finding a regimen with fewer pills to take would make it easier for them to take their medicines correctly. Second, participants believed that improving communication with their provider would help them to adhere better. Participants developed a broad range of strategies to improve communication with their provider. Most of the ideas reflected simple changes. For example, one person suggested, "Talk to the doctor when things aren't working." Several others concluded that being more forthright with their doctors would help. As one person said, "Be honest when I skip doses." Another respondent felt that he would be better able to take his medication if he sim-

ply had more contact with his doctor. When discussing doctor–patient communications, many participants identified writing down questions they had for their doctors as a way to help them remember important issues that were on their minds.

Several, less common ideas to improve health and health care also emerged. Many participants thought using a medication aid, such as a pillbox, would help them take their medicine. Interestingly, participants identified some factors to improve their health that they could not control. For example, when asked what might help her stay healthy, one respondent said, “If there weren’t other variables in my life that I had no control over.” Similarly, one participant eloquently stated:

... if I lived in a society where you weren’t shunned, ostracized, picked on, forgot about, avoided, all of that good stuff, for having HIV, you know . . . if it was just like breathing air . . . It would make life a lot easier.

Patient perceptions and evaluations of the MI session. Overall, participants had positive feelings about the session. One hundred percent of respondents felt that the MI session was useful (90%, “very useful”; 10% “somewhat useful”). Participants identified several reasons that the session was useful to them, which we grouped into three categories: (1) the way information about HIV was explained during the session; (2) having someone who talked with and listened to them; and (3) becoming more aware of things they could do to stay healthy. Ninety-five percent of participants felt comfortable discussing their health issues in the session (80%, “very comfortable”; 15%, “somewhat comfortable”); one person felt “a little uncomfortable” because of the focus on HIV. Ninety-five percent of participants felt that the information they had learned from the session would be helpful in making a positive change in their behavior. When asked how likely they were to change the way they talked with their doctor after this session, 40% were “very likely to change”; 20%, “somewhat likely to change”; 5%, “not very likely”; and 30%, “not likely at all.” Those participants who did not think they would change the way they talked with their doctor reported that they already had a good

relationship with their provider. When asked to explain what they had learned from the session, participants listed a number of items. Most participants reported learning more about the importance of taking their medicine as directed and about talking with their doctor. In addition, most reported learning specific techniques and strategies to improve their medication taking or relationship with their doctor. Participants explain some of the things that they learned from the session:

“Reminder to take medicines everyday to avoid resistance; keep amount of medicines in system.”

“Medicine box helped, reminders, friends, someone to talk to.”

“To tell [the doctor] to slow down, speak English, don’t understand, ask questions when he just finished the sentence.”

DISCUSSION

This paper describes the development, first use, and pilot assessment of a brief MI to facilitate adherence to ART medications. We also sought to understand from the patient perspective, not only what hinders, but as importantly, what helps patients take their ART.

This brief motivational interviewing session differs from other approaches to health counseling because in the MI, the counselor helps the patient find his or her own solutions by resolving ambivalence about that behavior rather than directing the patient to take a particular course of action. By discussing barriers and facilitators, patients easily identified both deficits in their self-efficacy and strategies to improve self-efficacy. This represents an innovative and empowering approach to health behavior counseling for HIV-positive persons.

In this study, not only did we evaluate the usefulness, acceptability, and perceptions of the intervention, but we also analyzed the content of the session to identify perceived barriers and facilitators to health. This qualitative report of the session’s content provides some insight into the cognitive and behavioral strategies that patients use to address adherence.

To assess the usefulness and flow of the MI session, we examined how participants chose a discussion topic when asked to do so in an open-ended manner. We found that those who did not immediately select a topic to discuss eventually chose to talk about one of two subjects: (1) taking antiretroviral medications or (2) their relationships with doctors. This suggests that these are concerns for many HIV patients.

Although most participants readily identified a health behavior of concern, some initially did not, because they felt that they were currently sustaining optimal health. This may reflect the true needs of the sample we interviewed. However, in another study, during in-depth, open-ended discussions, patients who initially perceived that they maintained excellent adherence revealed medication-taking behaviors that reflected suboptimal adherence.²⁸ Similarly, in our study, with further discussion, all participants identified a health concern that they wanted to discuss. Thus, brief MI may uncover previously unrecognized adherence issues for some individuals.

Several barriers and facilitators to ART adherence were identified that have not been previously reported. Many patients discussed the impact that other illnesses had on their ability to take their antiretroviral medications. It is possible that patients with other symptomatic illnesses are at higher risk for nonadherence; this finding warrants further study. In addition, many participants illustrated the need to address multiple barriers simultaneously as a barrier in and of itself. Although many participants believed in the benefits of taking ART, several disclosed concerns about its long-term effects; these concerns may affect their medication-taking. The impact of the patients' knowledge and beliefs about ART adherence also warrants further study. A heightened awareness of these concerns may facilitate discussions to alleviate anxieties that may interfere with medication-taking.

Although participants identified many of the same facilitators to medication-taking as participants in other studies did (relationships with a health care providers, social support, and having a schedule), a new theme emerged from our data.^{26,29} Many patients revealed an extreme fear of becoming sicker; this threat

may serve as motivation to take HIV medication. Perhaps this fear of becoming very sick partly explains why persons with HIV achieve relatively higher levels of adherence than do other chronically ill patients because many believe that even slightly suboptimal adherence can lead to drug resistance.^{5,6,29}

Participants not only identified barriers and facilitators to adherence, but most also developed specific strategies to overcome barriers that they had discussed during the MI session. Several patients believed that improving their communication with their providers was a feasible and important goal to improve their health.

Overall, participants had positive attitudes toward the session, reporting that the session was likely to help them change their behavior in order to improve their health. The majority identified, "being able to talk to someone, have things explained clearly and be listened to," as the aspects of the session that they liked the most.

This study has several limitations. First, it was conducted in only one site, among a convenience sample of patients, and thus, may be difficult to generalize to other populations. Recruitment depended on clinic staff approaching eligible patients or eligible patients inquiring about the study after reading a flyer in a study notebook in the clinic; therefore, we were unable to track the recruitment process effectively and had to rely upon a convenience sample. Because we met with participants only once, we were unable to evaluate the influence of the intervention on future patient behavior or the likelihood of patients returning for a follow-up session; however, this was a pilot study and the intervention is currently being tested in a 2-year randomized controlled trial. Because participants also received an educational tape prior to the MI, this may have facilitated their participation in the session or may have influenced their choice of topics. Although we did not directly assess clients' potential previous exposure to motivational interviewing, at the time that this study was conducted, there were no other motivational counseling programs and or no substance abuse treatment was conducted through the clinic where these clients received their HIV care. However, this

does not preclude the possibility that a participant may have received motivational interviewing in another setting but no participants disclosed this information during the pilot session. Finally, some of the patients' responses to the interview may have been influenced by the tendency to give socially desirable responses. To minimize this potential bias, interviewers used a standardized script that gave participants permission to critique the session and interviewers stressed to the participants the importance of giving honest feedback to help improve the newly developed intervention.

CONCLUSION

Because of the complexity of ART adherence-related issues and the self-regulated nature of medication-taking behaviors, it is important to be able to provide brief counseling as a part of comprehensive care aimed at empowering the patient to get the most out of his or her health care. With the introduction of new highly active antiretroviral therapy (HAART) and the frequent introduction of new medications, the HIV epidemic has changed from one of a death sentence to a chronic illness that requires patients to make numerous health behavior changes to maintain optimal health. Although, on average, patients with HIV achieve higher levels of adherence than do patients with other chronic illness,²³ many still have difficulty achieving the extremely high levels of adherence required to maintain long-term health.^{1,4-9} Qualitative studies have shown that patients perceive HAART as having life-saving properties.³⁰ The closer link between medication-taking and survival seen with HIV treatment²² than with other long-term treatments may explain the higher levels of adherence observed for HIV-infected individuals. However, additional interventions are needed to enhance HIV adherence to achieve optimal treatment success. If motivational interviewing can be shown to successfully improve adherence among persons with HIV, then this counseling style may be an important tool to assist in other health-related behavior changes with this population as it has among other populations.

Based on a conceptual model that is

grounded in prior observational studies and the current literature about ART adherence, we developed and pilot-tested a motivational interviewing session that is feasible, acceptable and useful to patients. This user-friendly tool to improve ART adherence merits further testing of its effect on objectively measured adherence.

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