

Motivational interviewing to support antiretroviral therapy adherence: The role of quality counseling

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Abstract

Objective: Although research linking motivational interviewing (MI) to behavior change exists, few studies report on MI's quality or explore how it may influence effectiveness. We studied MI quality and adherence to antiretroviral therapy (ART) in the context of a randomized, controlled trial.

Methods: We used a structured instrument to code MI sessions and then correlated ART adherence (measured by electronic bottle cap monitor and pill count data at study exit) with specific counseling behaviors and the proportion of interactions that achieved quality benchmarks.

Results: The sample ($n = 47$) was predominantly male (79%), minority (90%), had a mean age of 40, and averaged 79% adherence at exit. On three of five benchmarks, most MI sessions achieved the targeted quality level: 100% achieved them for MI-consistent statements; 85% for complex reflections; 63% for reflections to questions ratio; 44% for global therapist rating; 19% for using open-ended questions. ART adherence was positively associated with the ratio of reflections to questions ($r = .39, p = .02$), affirming statements ($r = .38, p = .02$), and negatively associated with closed-ended questions ($r = -.33, p = .04$).

Discussion: Good quality MI can be conducted within the structure of a controlled trial but was generally not associated with ART adherence.

Conclusion: Documenting treatment fidelity is critical to judging the efficacy of MI-based interventions.

Practice implications: Regular feedback and close monitoring are needed to maintain MI quality.

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Keywords: Motivational interviewing; Intervention fidelity; Adherence; HIV/AIDS; Antiretroviral therapy

1. Introduction

Antiretroviral therapy (ART) has helped turn HIV infection in the United States into a relatively manageable, though still serious, chronic disease [1,2]. Achieving and maintaining the health benefits of this regimen requires near-perfect adherence, which most patients do not achieve [1]. Those with suboptimal adherence have greater morbidity, are more likely to experience treatment failure, and risk

developing drug resistant forms of HIV [3–7]. To support patient adherence, the most recent national guidelines for antiretroviral therapy use recommend that health care providers assess and support patient adherence through routine counseling [1]. Some ART adherence interventions have demonstrated initial success, but more theoretically based research is needed if we wish to better understand why some counseling interventions are more effective than others [8,9].

One patient-centered approach to improve ART adherence is motivational interviewing (MI). Developed by Miller and Rollnick [10] for the treatment of problem drinkers, MI

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is an empowering counseling style that helps clients explore and resolve their ambivalence towards making change, thus moving them closer to the desired behavioral goal [11,12]. The “spirit” of MI is an interpersonal style that adapts and reacts to clients’ statements in a nonjudgmental manner and views the relationship as a partnership. The counselor emphasizes patients’ autonomy, but also guides them towards positive behavior change and patient-identified goals [10]. HIV+ patients report many challenges to achieving adherence to antiretroviral therapy adherence, such as forgetfulness, fear of HIV status disclosure, medication side effects, changes in daily routine, and depression [13–15]. Pilot studies have found that the MI counseling style is acceptable to HIV+ patients, who consider the sessions helpful in identifying tailored strategies to overcome their difficulties in adhering to ART [16,17]. In addition, HIV+ patients who received MI in one pilot study had better adherence to antiretroviral therapy than those in a control condition, although only one adherence measure achieved significance [17].

Motivational interviewing experts consider interviewer skill a critical aspect of eliciting client behavior change [18], but published descriptions of the intervention process suggest that MI quality may be inconsistent in practice [19,20]. Inconsistent treatment fidelity may lead to a false positive or false negative outcome [21]. Indeed, reviewers cannot be sure that an intervention adheres to the MI spirit in the absence of some evidence of treatment integrity [27,30]. Use of the motivational interviewing skill code (MISC), a structured assessment instrument developed at the University of New Mexico [22,23], may provide some specifics about the process of MI conducted as a part of an intervention. Despite the web-based availability of this instrument (<http://www.motivationalinterview.org>), few studies report on the quality of MI sessions conducted in clinical and community settings. In the absence of MISC, researchers report brief descriptions of training length and monitoring activities [24] or offer general assessments of the MI skill of training participants [19,25,26]. In contrast, researchers who have used MISC provide some evidence of the extent to which interventions – and interviewers – adhered to the MI spirit and demonstrated a reasonable level of MI skill. A small sample of training studies suggests that changes in MI behaviors post-training do occur, but are modest at best [27–31].

We present the results of a secondary data analysis of recorded brief MI sessions used during a randomized controlled trial to improve antiretroviral adherence among HIV+ patients attending a university-based infectious disease clinic. This paper has two aims: (a) to evaluate the quality of audiotaped MI sessions using MISC quality measures; (b) to explore whether MISC quality measures are associated with ART adherence. The second aim is based on the hypothesis that MI quality is an important part of the patient behavior change process [18]. To our knowledge, this is the one of the first studies to relate interviewer behaviors

and measures of MI quality to patient outcomes other than the positive client statements known as change talk [29,32].

2. Methods

2.1. Intervention description

The participating and communicating together (PACT) study was a randomized controlled trial to test a theoretically based, multicomponent intervention to improve ART adherence among HIV+ patients (PI: Golin). PACT’s aims were to: (a) encourage goal-setting and behavior change around ART adherence, and (b) train patients to participate in medical decision-making. The intervention was guided by a conceptual model based on empirical ART adherence research and social cognitive theory [16]. This model suggests that four general factors – characteristics of the patient, features of the treatment regimen, aspects of the patient–provider interaction, and conditions of the social environment – influence HIV+ patients’ motivation and self-efficacy and, in turn, their adherence to antiretroviral therapy. Patients at the University of North Carolina Infectious Disease Clinic who agreed to participate and were failing or not responding to therapy were followed for four visits over 12 weeks. At the enrollment visit, patients completed an in-person baseline survey interview, had their antiretroviral pills counted, and received intervention materials (e.g., audiotape, workbook, electronic pill bottle cap). At weeks 4 and 8 visits, patients completed follow-up survey interviews, submitted several types of adherence information (electronic data, pill count, self-report), and underwent an individualized brief health behavior session: motivational interviewing for the intervention group, and a standard educational offering for the control group. At the exit visit (12 weeks), patients completed a final survey and submitted adherence data. All MI sessions were audiotaped and professionally transcribed. The data for this study come from the week 4 visits for the motivational interviewing group.

Interviewers for the research study followed a semi-structured motivational interviewing script [16]. This bulleted guide allowed a degree of standardization of content and flow of the discussion needed for a randomized control trial, yet did not greatly compromise the patient-directed nature of motivational interviewing. The length of each session varied, but averaged approximately 30 min. Interviewers first asked participants to choose from a menu of primarily adherence-related discussion topics (e.g., side effects, forgetting to bring medication when traveling, disclosure in personal and professional situations). They then used reflective listening techniques to draw out participants’ ideas and feelings about the topic. Participants were asked to rate the importance of the topic on a scale of 0–3. Interviewers again used reflective listening techniques to highlight participant ambivalence and concern, and rate

their confidence in addressing the topic on a scale of 0–10. With participants' permission, interviewers then engaged in a discussion of ideas that could help them change their adherence-related behavior. Interviewers ended the session by asking patients if they wished to set goals for their topic, which would be revisited at the next session.

2.2. Sample

The sample for this secondary analysis came from the first 50 HIV+ participants of the intervention arm of PACT who agreed to be contacted for the study. The final sample was 47; one patient died, another was not on medication during the study period, and the audiotape for the MI session of a third patient failed. Participants in this analysis were predominantly male (79%) and minority (90%), with an average age of 40. Most (65%) had less than a high school education and made less than US\$ 15,000 in 2000 (67%). At baseline, three quarters (74%) of participants were on antiretroviral therapy, which increased to 91% at study exit. The mean viral load of the sample at baseline was 51,108 (range 25–750,001) and at exit 17,866 (range 25–155,305), a nonsignificant decrease ($p = .19$).

2.3. Interviewer training

Two masters' degree-level health educators and the project coordinator underwent standardized training for conducting motivational interviewing. The purpose of the training was to both standardize the structure and, to some extent, the content of the MI sessions while allowing the counselors some flexibility during the sessions. All interviewers received an initial series of half- and full-day workshops on motivational interviewing over a 2-month period (3 days for a total of 24 h). Conducted by members of the Motivational Interviewing Network of Trainers (MINT), these workshops included a number of opportunities for practice. To ensure quality and standardization of the implementation of the MI sessions by the three interviewers, the principal investigator (C.G., a MINT member) conducted feedback sessions every other week at in-service trainings. Together the team reviewed the audiotapes for MI technique to ensure on-going fidelity to the PACT protocol.

2.4. MI quality assessment

2.4.1. Motivational interviewer skill code and inter-rater reliability

We conducted our analyses with MISC 1.0 [22]. Full MISC coding requires three separate passes through the audiotaped interviews: (a) to evaluate globally the client–counselor interaction in a subjective manner; (b) to count specific, defined behaviors of both therapist and participant; (c) to measure the ratio of interviewer to patient talk time. The third pass through the audiotapes was not conducted for

these analyses. Both the external rater (A.T.) and principal investigator independently coded a randomly sampled subset of interviews ($n = 13$; 25%) until they reached an inter-rater reliability level of 89%. In addition, 10% ($n = 5$) of interviews were coded by MI experts at the University of New Mexico as an outside check on the work of the external rater; the inter-rater reliability of these scores was 72%. These results compare favorably to a published account of 75% inter-rater reliability for MISC global measures and 44% for specific behavior counts [23].

2.4.2. Global assessment of interviewer and participant behaviors

To globally assess the character of each session, the rater assigned scores on a seven-point Likert scale (range equals 1–7) to different aspects of the interviewer's and participants' behavior. Global interviewer behaviors coded were the following: (a) *acceptance*, expressing unconditional positive regard; (b) *egalitarianism*, emphasis on participant autonomy and choice; (c) *empathy*; (d) *genuineness*; (e) *warmth*; (f) *spirit*, a general assessment of overall expression [22]. Four global aspects of participants' reactions were coded: (a) *affect*, showing clear emotion during interview; (b) *cooperation*, responding to the counselor and not resisting; (c) *disclosure*, revealing significant information about self during the interview; (d) *engagement*, being actively involved and interested in the interview process [22]. Finally, the dynamic between the interviewer and participant was assessed in two ways: (a) *collaboration*, how well the interviewer and participant worked together; and (b) *benefit*, the extent to which the participant showed movement towards change [22].

2.4.3. Coding of interviewer and participant behavior

MISC categorizes interviewer behavior into 22 specific codes. These codes include a broad range of communication behaviors observed to occur during MI that are believed to either facilitate or obstruct client behavior change. Examples of facilitative behaviors include “affirming,” “paraphrasing,” “summarizing,” and “supporting;” examples of obstructive behaviors include “directing,” “confronting,” and “advising without permission” [22]. Client communication behaviors that may occur during MI are coded as one of following categories: (1) *ask*, requesting information of the counselor; (2) *follow/neutral*, comments that merely follow along with the counselor's queries or do not specifically relate to making behavior change; (3) *change*, comments that indicate the participant is motivated to make a change, is planning to make a change, or recognizes a problem that keeps him/her from making a change; (4) *resist*, comments that indicate that the participant is not motivated to make a change or does not plan to make a change. We defined “change talk” as that which specifically related to antiretroviral therapy adherence or its known barriers/facilitators (e.g., asking a relative for transport to the pharmacy to pick up a prescription,

recognizing that drinking alcohol reduces the ability to adhere).

2.4.4. MI quality measures

The quality of a motivational interview is assessed by the following measures [22,23]:

- *Global therapist rating*: This rating is the average score of the global interviewer behaviors of acceptance, egalitarianism, empathy, genuineness, warmth, and spirit.
- *Reflections:questions*: This is the ratio of the number of reflective statements made to the number of questions asked by the interviewer.
- *Percent open questions*: This is the ratio of the number of open-ended questions asked to the total number of questions (open- and closed-ended) asked.
- *Percent complex reflections*: This is the ratio of the number of paraphrasing- and summarizing-type reflective statements to the total number of reflective statements (repeat, rephrase, paraphrase, and summarize) asked.
- *Percent MI-consistent reflections*: MI-consistent responses are those that are described as key aspects of the MI therapy style [10]: giving advice only with permission of the participant; affirming the participant and supporting his/her efforts to change; emphasizing the participant's control; use of open questions and reflective statements; reframing the participant's behavior in a different light.

We compared our results to established benchmarks for MI quality [22]; for all measures, the higher the score, the better.

2.5. Association with antiretroviral therapy adherence

2.5.1. Measures

We measured adherence at 4 and 12 weeks past baseline by a previously developed and validated composite adherence score, or CAS [33]. CAS represents the percentage of prescribed doses taken by a patient. It is derived from an algorithm which combines, in a hierarchical fashion, data from an electronic bottle cap monitoring system [34], a pill count, and patient self-report. CAS data were unavailable at baseline, but adherence as measured by pill count averaged approximately 56% for participants in both the intervention and control arms of the study. Of the 50 participants selected for this analysis, complete CAS data at week 12 was available for 39 individuals. One patient was not on medication at study exit; another had invalid MEMS and pill count data, and CAS could not be computed; six were lost to follow-up. We also calculated the change in CAS score for the 35 participants for whom we had both week 4 (first motivational interviewing session, when CAS data were first available) and week 12 (study exit) CAS data.

2.5.2. Analyses

We calculated the proportion of sessions that achieved the MI quality benchmarks established by MISC. In addition, we used the Spearman correlation coefficient to explore associations between interviewer behavior, MI quality measures, and antiretroviral therapy adherence. We conducted these analyses for both the full group and a subsample of participants who specifically chose medication-related topics for their MI session ($n = 31$). We carried out the latter analysis to explore whether there were differences in outcome associated with participant focus on antiretroviral medication taking. We used SPSS 12.0 for these analyses.

3. Results

3.1. Global assessments

Table 1 presents the average scores for the global measures of MI skill by interviewers and participant engagement. The external rater assessed interviewers and participants as above average on all global measures. For interviewer behaviors, the highest ratings were for "genuineness" (5.3) and "warmth" (5.3); the lowest was for "egalitarianism" (4.0). Degree of disclosure was the most highly rated participant dimension; affect expressed by the participant and degree of collaboration between the interviewer and the participant received the lowest average score.

3.2. Behavior counts

Interviewers exhibited high levels of behaviors consistent with the MI style (Table 2). On average, the most common interviewer behaviors were asking closed- and open-ended questions (15.2 and 9.3 per session, respectively), as well as

Table 1
Global assessment of interviewer's MI skill and participant engagement

Measure	Average	S.D.	Range
Interviewer			
Genuineness	5.3	.9	4–7
Warmth	5.3	1.0	4–7
Acceptance	5.2	.9	4–7
Empathy	5.1	.9	3–7
Spirit	5.0	1.2	3–7
Egalitarianism	4.0	.7	2–6
Participant			
Disclosure	5.3	1.7	1–7
Cooperation	5.1	1.6	1–7
Engagement	5.1	1.5	2–7
Affect	5.0	1.1	3–7
Interviewer–participant interaction			
Benefit to participant	5.2	1.0	3–7
Collaboration	5.0	1.5	1–7

Table 2
Average number of interviewer and participant MI-relevant behaviors per session

Behavior ^a	Average use	S.D.	Range
Interviewer			
Question—closed (0)	15.2	7.2	2–36
Question—open (+)	9.3	4.4	2–21
Reflect—summarize (+)	8.9	9.2	2–23
Facilitate (0)	8.2	7.9	0–30
Reflect—rephrase (+)	7.0	3.9	0–18
Structure (0)	6.8	1.3	0–23
Reflect—paraphrase (+)	5.7	5.0	0–24
Reflect—repeat (+)	5.1	3.9	0–14
Support (+)	2.9	5.4	1–7
Inform—general information (0)	2.4	2.9	0–12
Advise with respondent's permission (+)	1.7	1.9	0–8
Affirm (+)	1.7	3.9	0–18
Advise without respondent's permission (–)	1.0	1.6	0–7
Direct (–)	1.0	1.1	0–5
Filler (0)	.7	1.6	0–7
Inform—personal feedback (0)	.4	.8	0–3
Inform—self-disclose (0)	.4	1.0	0–5
Emphasize control (+)	.1	.5	0–2
Reframe (+)	.1	.2	0–3
Raise concern (+)	.0	.2	0–1
Confront (–)	.0	–	0
Warn (–)	.0	–	0
Participant			
Ask (0)	1.9	2.3	0–12
Neutral (0)	44.7	19.0	11–113
Resistant (–)	2.4	3.3	0–16
Change (+)	14.3	9.6	0–43

^a Behaviors are coded as MI-consistent (+), MI-inconsistent (–), or neutral (0).

summarizing patient responses and making facilitating comments (e.g., “Umm-hmm” or “Okay”). The last three are MI-consistent behaviors. Interviewers never used confronting or warning behaviors; these behaviors are inconsistent with MI. On the other hand, we also saw little to no use of concern-raising or reframing, both behaviors consistent with MI. The most common response by participants was a neutral one. Participants made almost seven times as many change statements per session (14.3) as resistance statements (2.4).

3.3. MI quality benchmarks

Table 3 presents the percentage of interviews that achieved the MI quality benchmarks. In the majority of

Table 3
Achievement of MI quality benchmarks

Behavioral indicator	Benchmark	Average rating or %	% Sessions achieved threshold (<i>n</i> = 47)
Global therapist ratings	>5.0	5.0	43.7
Reflections to questions ratio	>1.0	1.2	62.5
Percent MI-consistent statements	>50%	96.2%	100
Percent complex reflections	>40%	55.6%	85.4
Percent open questions	>80%	39.2%	18.7

MI sessions, interviewers demonstrated acceptable levels of skill on three of the five quality measures (reflections to questions ratio, percent MI-consistent statements, percent complex reflections). The average global therapist rating (5.0) was at the cusp of, but did not achieve, the established benchmark. Few sessions (18.7%) had a high enough ratio of “open questions” to “all questions asked” to achieve the MI quality benchmark.

3.4. Association with antiretroviral therapy adherence

3.4.1. Full group

The average adherence level at week 4 was 71.0% (S.D. 25.6) and at Week 12 (study exit) was 75.2% (S.D. 26.9), a nonsignificant increase ($p = .33$). A higher ratio of reflections to questions asked by the interviewer, an MI quality measure, was associated with higher antiretroviral therapy adherence at study exit by participants ($r = .39$, $p = .02$). Adherence at study exit was also positively associated with the number of affirming statements ($r = .38$, $p = .02$) and negatively associated with the number of closed-ended questions ($r = -.33$, $p = .04$).

The average change in adherence from weeks 4 to 12 was 4.6% (S.D. 27.7). Neither MI quality measures nor interviewer behaviors were associated with the change in adherence over time.

3.4.2. Subsample

Among participants who specifically chose to discuss medication-related topics ($n = 30$), the average adherence level at week 4 was 67.7% (S.D. 27.6) and at week 12 was 74.5% (S.D. 27.0), a significant increase ($p = .01$). For this group, adherence at week 12 was positively associated with two MI quality measures, the global therapist rating ($r = .39$, $p = .03$) and the ratio of reflections to questions ($r = .45$, $p = .01$). Higher adherence at week 12 was also associated with higher ratings for acceptance ($r = .38$, $p = .04$) and empathy ($r = .48$, $p = .01$), as well as a greater number of affirming statements made by the interviewer ($r = .43$, $p = .02$). The number of closed-ended questions was negatively associated with adherence at week 12.

The average change in adherence from weeks 4 to 12 for this group was 6.8% (S.D. 27.4). Neither MI quality measures nor interviewer behaviors were associated with the change in adherence over time.

4. Discussion and conclusion

Little published information exists on the quality of motivational interviewing conducted in community and clinical settings. Past studies using the motivational interviewing skill code (MISC) to evaluate MI quality primarily report changes in counseling behavior after workshop training, rather than during the course of an intervention study [27–29,31]. Our evaluation reviewed MI quality in practice during an efficacy trial. In this study we used a structured assessment instrument to describe and evaluate how motivational interviewing was used in a randomized controlled trial to improve antiretroviral therapy adherence among HIV+ patients. Because variation in MI counseling may affect intervention efficacy, we also explored the association between interviewer behavior during MI sessions, measures of MI quality, and ART adherence.

4.1. The quality of motivational interviewing conducted in the PACT study

PACT motivational interviewers generally demonstrated proficiency in motivational interviewing based on established benchmarks. Interviewer strengths were in using complex reflections and in making statements that were consistent with MI technique and spirit. Complex reflections are therapist interpretations of what patients say that promote further dialogue. Almost all of the most commonly exhibited interviewer behaviors that are components of ideal MI technique have been shown to encourage greater patient communication and engagement, and are associated with both positive adherence behaviors and health outcomes in other settings [35–37].

The interviewers were less successful in using relatively more reflective statements than questions, or in using open-ended questions as opposed to close-ended questions. Reflective listening is deliberately built into the MI script, but it is a more complex skill to perform than question asking. The interviewer guide also directs interviewers to ask closed-ended questions at particular points in the session (e.g., “on a scale of 0–10, with 0 being not at all important and 10 being very important, what rating would you give all of the issues surrounding taking your medicines?”). Interviewers also ask participants closed-ended questions to clarify factual points. Both following the interviewer guide and asking for clarification would increase the number of closed-ended questions relative to open-ended questions or reflective statements. Overall, however, our results show that MI can be conducted at an acceptable level of quality, even given the constraints of a randomized controlled trial.

4.2. Motivational interviewing quality and antiretroviral therapy adherence

The influence of motivational interviewing quality on antiretroviral therapy adherence was most strongly seen

among patients who specifically chose medication-related topics, 65% of the full sample. The ratio of reflections to questions (an MI quality measure), as well as the number of closed-ended questions and affirming statements (interviewer behaviors), were related to an objective measure of antiretroviral therapy adherence among all patients. For patients who chose medication-related discussion topics, having interviewers who had higher global therapist ratings and other indicators of good MI style (acceptance, empathy, affirmation) also was related to higher adherence levels. Interviewers who use more affirming and reflective statements may better demonstrate that they are actively listening and involved with patient concerns than interviewers asking questions, whether open- or closed-ended. Such direct and indirect expressions of support are intended to establish the client-centered context necessary to motivate patient behavior change.

On the other hand, few indicators of MI quality were significant correlates among the full sample, which included individuals who chose to discuss topics which were more distally related to adherence (e.g., problems in interpersonal relationships). One reason for the discrepancy may be that patients who chose medication-related topics started with worse adherence and showed significant improvement over the course of the trial as compared to those who did not choose such topics. Thus, they had a greater possibility of showing the effect of MI quality. Motivational interviewing places equal emphasis on *client-centeredness* and *directiveness* [10]. What we learned in our feedback sessions with the interviewers during the study period was that they needed to more actively focus patients on the purpose of the counseling – medication adherence – than they were doing. For those patients who were more health problem-focused, our findings suggest that how interviewers conducted the session was just as important for improved outcomes as what the interviewers said.

Still, we were surprised not to find a wider pattern of association between MI quality measures or interviewer behaviors and antiretroviral therapy adherence. This may be a function of the small sample size, which may not allow for detection of small or medium size effects, or the restricted range (generally high) of MI quality demonstrated in our study. It is also possible that the influence of counseling quality increased over time; we did not have the resources to conduct additional, labor-intensive analyses of the second MI sessions. Patient-level determinants of adherence which may pose a challenge to engaging patients, such as depression, were also not taken into account in our analyses. In addition, further research with a larger sample should examine the potential mediating role of positive patient statements regarding behavior change (“change talk”), which has predicted a proportion of days abstinent by drug abusers [32]. These issues, individually or in concert, could obscure the relationship between MI quality and antiretroviral therapy adherence by HIV+ patients.

4.3. Treatment fidelity for motivational interviewing intervention research

Treatment fidelity has long been acknowledged as a critical element in the success of public health programs [21,38,39]. Defining fidelity is challenging for motivational interviewing interventions, however [40]. Capturing the “spirit” of MI, as a particular style of therapy and not merely a collection of counseling techniques [10], is a complex and subtle process [40]. To put the results of MI efficacy research in context [11,24,41], researchers should include details about interviewer training and skill level in published accounts. Evidence of interviewer skill strengthens our confidence that positive results are a product of the MI process and reduces concern that positive or negative findings may result from poor treatment implementation [21]. Minimal details should include hours of training and types of monitoring provided interviewers. Optimally, MISC should be used when efficacy trials of MI-based interventions are conducted. The current revised version of the MISC simplifies the assessment content and process [42].

4.4. Practice implications

Our findings support the conclusions of others who highlight the need for ongoing monitoring and feedback within MI-based interventions [11,24,40,41]. During the PACT trial, we regularly reviewed taped sessions with interviewers as well as offered opportunities for practice in ongoing in-service training sessions with them. This reinforcement is especially important in the early stages of MI training and application to support recently acquired skills and promptly address deficiencies. Indeed, a randomized trial of training methods which used MISC to assess actual counseling sessions at 4, 8, and 12 months post-training found that follow-up coaching and/or feedback improved retention of skills over time [28]. Because of its complexity, however, MISC is best used when specifically studying the process of motivational interviewing. The motivational interviewing treatment integrity code (MITI) was developed specifically for assessment of MI style and interviewer feedback in practice settings [40,43]. Whatever method is used, we encourage greater attention to interviewer training and monitoring in MI-based interventions.

4.5. Conclusion

Antiretroviral therapy is a critical aspect of HIV/AIDS care. Taking medication consistently and correctly, however, is difficult for most HIV+ patients. Motivational interviewing offers one way for patients and healthcare providers or other support staff to work together to improve the odds of treatment success. Despite its small sample size and limited generalizability, this study is one of the few that explores the processes of MI in detail and to relate MI quality measures to

behavioral outcomes. Though few measures of MI quality were associated with antiretroviral therapy adherence in our study, documenting and assessing interviewer skill is still critical to establishing whether the counseling provided is at a high enough quality level that observed behavior change can be attributed appropriately to the intervention rather than extraneous factors [18,24].

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