A randomized controlled trial to influence client language in substance use disorder treatment

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Introduction

Motivational Interviewing (MI) is a psychotherapeutic method commonly used for helping clients resolve ambivalence about changing problem behaviors. Although MI now stands upon a substantial evidence base for improving various client outcomes such as smoking, controlling blood sugar levels and hazardous use of substances (Heckman et al., 2010; Lundahl et al., 2013), concerns have been raised about uneven effect sizes and puzzling variability in clinical trials of MI (Miller and Moyers, 2015a). As with other psychosocial interventions, MI lacks definitive experimental support for specific causal mechanisms, leaving open the possibility that the lack of reliability in client outcomes is caused by including extraneous procedures or omitting critical processes entirely.

Hypothesized causal mechanisms have been identified for MI. A seminal paper by Miller and Rose (2009) describes both a relational and a technical component as active ingredients of the method. Although emphasis on the therapeutic relationship is similar to other client-centered approaches, the technical component is unique to MI. It focuses on the counselor's ability to attend contingently to the client's language about a particular behavior change and

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shape it toward greater strength and frequency during the therapeutic interaction, while fading attention to language supporting the status quo. This attention to client language is commonly referred to as valuing "change talk" (CT) during MI sessions while strategically overlooking "sustain talk" (ST) and is conce tualized as a method to enhance self-persuasion (Aronson, 1999). Put simply, it is hypothesized that clients are more likely to accept and believe arguments for changing problem behaviors when they themselves are offering them, as opposed to hearing them from an external source. A robust body of social psychological literature indicates that verbally advocating for a course of action ("I should change my drinking") that is incompatible with a personal belief ("my drinking is not a problem") generally leads to a change in the belief in the direction of the verbal statements, a phenomenon known as "counterattitudinal advocacy" (Aronson, 1999). Relevant to the area of substance abuse and other behavior problems, self-persuasion is most likely to occur when a person's actions violate their view of themselves as being honorable or having moral integrity (Leippe and Eisenstadt, 2010; Nel et al., 1969). Cultivating change talk within MI, then, can be seen as a way of facilitating self-persuasion in favor of change and would be especially likely to occur when problematic behaviors violate a person's deeply held beliefs about himself.

Apart from theoretical explanations, there is strong empirical support for the association between the language clients offer in sessions and their subsequent likelihood of change (Romano and Peters, 2015). Multiple studies have shown that change talk in MI sessions is predictive of changing problem behaviors and conversely that sustain talk predicts poorer outcomes (Magill et al., 2014). Other analyses have highlighted the relationship between sustain talk and poorer outcomes, particularly in adolescent and conscripted populations (Gaume et al., 2016). Of course, such language could simply be a marker of some other process, such that clients who are already motivated to make a change discuss that possibility during treatment sessions whereas clients who are less motivated do the reverse. In this way, change and sustain talk could be indicators of some underlying process but not contribute to it, in much the same way that smoke indicates a fire, but does not cause it. This is the peril of correlational research, which has characterized the findings for this causal mechanism to date.

The understanding of client language during MI sessions, and particularly whether it might be a causal mechanism of the treatment, cannot advance further at this point without experimental manipulations of client language. In particular, if client language is actually a causal element in MI, then it should be malleable to counselors influence, whereas if it is simply an epiphenomenal indicator of some other client characteristic (such as motivation), it should not necessarily respond to attempts to shape it. Only one published study (Glynn and Moyers, 2010) has attempted to manipulate client language during MI sessions, using an ABAB design in which counselors switched counseling styles every 12 min during treatment sessions. During segments when counselors were intentionally attempting to influence client change talk it reliably increased, only to decrease during segments when the counselors shifted to a more neutral assessment of the client's drinking.

Although experimental manipulation of change and sustain talk represents the next logical step in investigating this causal mechanism, it must first be demonstrated that counselors can

learn to do this. This is a complex challenge for many counselors since it requires: 1) knowledge of the importance of client language, 2) recognition of change talk and sustain talk in real time, 3) selectively responding and 4) proactively and strategically evoking change talk and softening sustain talk, in real-time, while also managing other therapeutic tasks (e.g., maintaining rapport). It is not immediately apparent that frontline treatment providers, including substance abuse counselors, can acquire and execute this skill set or how much training would be required to do so. Previous studies investigating the ability of counselors to learn MI indicate that skill acquisition is closely tied to baseline counseling skills and that counselors are highly variable in their response to MI training (de Roten et al., 2013; Hall et al., 2015; Moyers et al., 2008). Caution is warranted since a non-trivial minority of counselors do not seem to improve in their learning of MI even when they are offered intensive training, feedback, and coaching (Miller et al., 2004).

The current study is a randomized controlled trial intended to investigate the impact of specialized training on substance use disorder counselor's ability to recognize, evoke, and selectively respond to client change and sustain language during MI treatment sessions. It compares standard MI training (MI-AU) to Language Enhanced Attention and Focus MI training condition (MI-LEAF) to investigate: 1) if tailored training will allow frontline substance use counselors to acquire these skills and 2) whether the differential use of these skills increases change talk and decreases sustain talk of their clients in subsequent treatment sessions. We hypothesized that counselors who received the specialized training would exhibit increased selectiveness in responding to client language, and that this would result in more change talk and less sustain talk from their clients in subsequent treatment sessions compared to counselors receiving standard MI training.

Method

Project ELICIT (Evaluating Language in Clinical Interviewing Training) was a randomized, controlled trial to evaluate the impact of specialized counselor training upon the frequency of client change talk during MI treatment sessions for substance use disorders. Two training conditions were compared: 1) MI As Usual (MI-AU) and 2) MI Language Enhanced Attention and Focus (MILEAF). The primary outcome measures were the frequency of client change and sustain utterances in treatment sessions conducted by the participant counselors at 3, 6 and 12 months after training.

Sample and participant selection

All study procedures were approved by the Main-Campus Institutional Review board at University of New Mexico prior to the start of recruitment. Participants for this study were mental health professionals working in publically-funded or non-profit settings, treating primarily substance misuse clients. Advertising for the study was done via study website, professional journals, the Clinical Trials Network newsletter, substance use disorders listservs, and trade publications for substance treatment. Initial screening occurred when potential participants (n = 1658) submitted a questionnaire via the study website. Eligibility criteria included: current employment treating mainly substance abuse clients in a not-forprofit or public setting, fewer than 8 h of previous MI training, current licensure or

certification in a behavioral health field, and willingness to travel to New Mexico for training. To avoid cross contamination of training conditions, only one participant per treatment site was permitted to enroll in the study.

Initial phone/internet screening was completed for 1658 substance use treatment providers and 406 were eligible for randomization. Of those eligible, 372 requested application packets and 200 returned completed applications. Ten individuals were eliminated because they moved or changed jobs, or decided not to travel for the training. This resulted in 190 participants who were randomized into study conditions. Participants completed a baseline packet, including a baseline work sample of themselves conducting substance abuse treatment with a client in their work setting. All 190 participants were randomized into a training condition, completed the MI training and provided data for at least one follow up point. Additional details on the characteristics of recruited participants are presented below in the Results and summarized in Table 2.

Clients in the audiotaped work samples were required to be real patients (not role played or standardized patients) with a primary focus of substance abuse, who had not been seen by the participants for more than six sessions. Clients were not deemed to be research participants in this study. Their session recordings were provided anonymously and no information was gathered about them. Clients provided written permission to be recorded and for their recordings to be reviewed by study personnel, which was documented in their charts at the home agencies. No information about clients was obtained. Treatment agencies provided permission for the participants to audiotape their work, once client permission had been obtained and documented in the file.

Assessments and measures

Baseline assessment included: a Confidential Pre-Training Questionnaire designed to evaluate demographics, theoretical orientations, and beliefs about learning MI (Miller et al., 2004; Moyers et al., 2008). To assess workshop efficacy, a multiple-choice MI Knowledge Test for motivational interviewing content was administered Pre and Post workshop training (Cronbach's α = 0.54 Pre; 0.64 Post). Items in the MI Knowledge Test were multiple choice, and included items such as "Within the MI framework, ambivalence about change on the part of the client is: a) normal and useful, b) a major roadblock to change, c) pathological, or d) irrelevant." (correct answer: a). The MI Knowledge Test and scoring key are available at http://casaa.unm.edu/mimanuals.html.

Follow-up assessment included: an audiotaped worksample of participants conducting motivational interviewing with actual clients in their work settings at 3, 6 and 12 months after workshop training. These tapes were approximately 45 min long (M = 46.05 min, SD = 9.45 min, range = 30–102 min at 3 mo). Each work sample was accompanied by a Working Alliance Inventory (Horvath and Greenberg, 1989) from the participants.

Experimental conditions

Participants were randomly assigned to one of two training conditions: MI As Usual (MI AU) or MI with Language Enhanced Attention and Focus (LEAF). The MI AU condition utilized a standard MI training, consultation and feedback format from two previous training

studies (Miller et al., 2004; Moyers et al., 2008). For the MI LEAF condition, the language-training component was expanded so that it comprised 40% of the training material (and time on task in the workshop), rather than the 5% accorded to it in the usual training condition. New exercises and didactic material were added to increase participant skills in recognizing, eliciting and responding to client language during treatment sessions. Similarly the consult calls for the MI LEAF group were amended so that the exercises and roleplays focused exclusively on client language. Feedback about work samples in the MI AU condition reported only the counselors' scores on the MITI, while the MI LEAF condition provided additional information about the client's level of change and sustain talk. Finally, the MI LEAF received a new training DVD focusing entirely on client language during MI sessions, while the MI AU group received the standard MI training video series. Differences in the training conditions are summarized in Table 1. The training materials and information about DVDs can be found at http://casaa.unm.edu/mimanuals.html.

Procedures for training, consultation and follow up recordings

Participants were recruited in two waves (one in November 2008 and a second in November 2009). In each wave, participants attended a two-day training workshop in Albuquerque, NM, USA, led by expert Motivational Interviewing trainers (Brian Burke, William R. Miller, and Theresa Moyers). In order to facilitate recruitment of participants from public service settings, most expenses to participants, including airfare, hotel, meals, digital recorders, and training materials, were paid for by the study. Participants were randomized to two different groups and on the day of the training an observed coin toss determined which group would be the MI-AU and which the MI-LEAF condition. Participants were masked to the fact that the trainings differed. All trainers rotated among groups with equal time spent in each. At the conclusion of the two-day training, participants completed a 20-min role-played Motivational Interviewing session (Post-Training time point) with a standardized-patient actor.

All participants were encouraged to schedule up to four 30-min coaching calls with a Motivational Interviewing expert. Coaching calls were completed between the Post-Training and Three-Month time points. The purpose of these calls was to: 1) rehearse Motivational Interviewing skills in roleplays, 2) review core skills and 3) review and discuss coding feedback. In the first coding call, the participants received feedback about their post training worksample with the standardized patient actor. In the MI-AU condition, participants followed a format for coaching sessions from our previous training studies (Miller et al., 2004; Moyers et al., 2008), whereas in the MI-LEAF condition the coaching sessions were exclusively focused on skills to influence client change and sustain talk (see Table 1). Participants submitted follow-up work samples of themselves conducting Motivational Interviewing treatment sessions with a real client in their work setting at 3, 6, and 12 months post-training.

Evaluation of participants and client language in audiotaped work samples

All study recordings were rated by coders using the Motivational Interviewing Skill Code (MISC 2.5, Houck et al., 2010) and the CACTI coding software (Glynn et al., 2012). The MISC 2.5 is a mutually exclusive and exhaustive behavioral observation system designed to

capture client and counselors variables relevant to the process of MI. The CACTI software is a free, open-source application developed for this project that permits sequential coding of digital audio samples with the MISC 2.5 without requiring transcription. Coding using CACTI was performed in two separate, independent passes for this study. In the first pass audio recordings were parsed into utterances and global ratings were assigned. In the second pass the parsed utterance were assigned behavioral codes.

Coders were seven graduate and two undergraduate students at the University of New Mexico. They were trained through didactic lectures, structured practice and weekly meetings over a 6 month period, and achieved at least a "good" level of inter-rater reliability (consistently achieving ICC > 0.6) before beginning to code study recordings (see Moyers et al., 2009 for a detailed description of training and reliability procedures for the MISC). Using CACTI software, coders parsed client and provider speech into utterances, and then sequentially coded behaviors. Except for reliability samples, raters did not code recordings that they had parsed. Coders were masked regarding the time point and training conditions of each of their recordings.

Outcome variables

The primary outcome variables for the study were the frequencies of both change and sustain talk in the follow up work samples from clients in actual treatment settings. Analysis of speech variables was conducted in HLM 7 using an over-dispersed Poisson model that accounted for session length (Holsclaw et al., 2015). Because Poisson regression raw regression coefficients are on a log scale, they are typically exponentiated and interpreted as rate ratios (Atkins et al., 2013). Rate ratios are interpreted similarly to odds ratios in logistic regression; that is, the distance above or below 1 is interpreted as the percentage increase or decrease in the outcome for a 1 unit increase in the predictor. Mediation analysis was conducted using PROCESS (Hayes, 2013) and reported the K2 effect size (Preacher and Kelley, 2011). This effect size ranges from 0 to 1 and describes the proportion of the maximum mediated effect that could have occurred, if the effects in the mediation model had been as large as the data and design permitted (i.e., within the bounds implied by the observed variances).

Power analysis

To estimate the number of participants needed to detect an effect with power of 0.80, we used the effect size for comparison between the workshop with consults (WC) and the workshop with feedback and consultations (WFC) groups in the Project EMMEE study (Miller et al., 2004), which utilized the MI-AU training format for all groups. Comparison of WC to WFC at the 4-month follow up point yielded an effect size of d = 0.39. Assuming a two-tailed test, unprotected Type I error = 0.05, d = 0.39, and desired statistical power of 0.80, we estimated that we would need 82 participants per group.

Results

Sample demographics

Participants (n = 190) were recruited from 40 states and all were licensed or certified to conduct substance abuse treatment. Certified drug and alcohol providers comprised 33% of the sample, 31% were social workers, and were 18% Licensed Professional Counselors, with the remaining 18% in various other disciplines such as psychologists, physicians and nurses. Participants reported that they spent, on average, 25.62 (SD = 11.16) h per week treating clients with substance use disorders. Women comprised 62% of the sample. Participants were 79.7% White, 5.9% Black or African American, 2.6% American Indian/Alaska Native, 0.7% Asian or Asian American, 5.9% Hispanic, 5.2% other backgrounds (See Table 2). All participants were fluent in spoken and written English. The two groups were examined for differences in relevant baseline measures. Groups were equivalent with regard to all examined characteristics including gender, ethnicity, education, and experience. At baseline, there were no differences between groups on measures of clinician speech (e.g., MICO, reflection:question ratio, percent complex reflections; all $p > 0.38$) or client speech (change talk, sustain talk, percent CT; all $p > 0.42$).

Participant attrition and follow up

A total of 776 work samples were collected across all follow-up points. To ensure that the data reflected the effects of training enrichments, samples from participants who completed fewer than three consult calls were excluded. Samples that did not adhere to study criteria (i.e., role-played sessions, non-SUD target behaviors, more than seven sessions with same client) were similarly excluded, as were inaudible sessions. This resulted in a sample of 609 sessions, or 78.5% of all sessions submitted, with 81.7% at 3 months, 73.2% at 6 months and 51% at 12 months. After each follow-up, participants received global ratings of their MI proficiency based upon their MISC ratings of the submitted sample. There were no between-group differences on the number of work samples submitted at any follow-up (all $p > 0.25$), nor were there any differences between groups in the number of consult calls completed ($t(189) = 0.404$, $p > 0.60$, $d = 0.0594$).

Interrater reliability estimates for coding of worksamples

A subset of 72 randomly selected recordings (11.8%) were coded by the 6 coders completing the majority (84.7%) of all recordings. Intraclass correlations (ICC's) across all six coders for behavior counts ranged from 0.59 to 0.99 (Cicchetti, 1994). For this reliability sample, 34.7% of the total tapes were drawn from MIU, 65.3% from LEAF, ($t(71) = 2.704$, $p < 0.01$), indicating that despite random selection the LEAF condition was oversampled. Since the most challenging behaviors to code (RefCT, RefST) are more frequent in the LEAF condition, this disparity in the sampling may have resulted in an underestimate of the reliability of the coders for the entire sample of tapes. (See Table 3 for all reliability estimates.

Analysis plan

Because outcome measures were nested within participants, multilevel modeling was used to assess the impact of the experimental manipulation. Our analyses examined client language both 1) at the 3 month follow up and 2) in all follow-up periods simultaneously. Mediation analyses focused on the 3 month follow up period. We used the PROCESS software (Hayes, 2013) to examine the relationship between group assignment and client language, mediated by the directional reflections of the providers (a strategy emphasized in the MI Leaf condition). We expected that group assignment (MI AU v MI Leaf) would predict the type of reflections used by participants in their follow up work samples (A path) and that directional reflections would predict client speech in those sessions (B path). Overall, we expected to see a relationship between group assignment and client speech (C path).

Was there a training effect for the MI workshop?

Knowledge test—The MI Knowledge Test was used as the outcome measure to estimate the impact of training. It was administered at baseline and post-training, and results indicate a significant increase in MI knowledge (b = 0.111, SE = 0.015, t = 7.146, p < 0.001) for all participants with no significant differences between training conditions (b = −0.041, SE = 0.031, t = −1.328, p = 0.186).

Frequency counts of outcome variables—As expected, common MI skills that were common to both treatment conditions, such as providing complex reflections (b = 0.063, SE = 0.080, p = 0.43, CI[0.910–1.247] and asking open questions (b = −0.087, SE = 0.071, p = 0.221, CI[0.797–1.054], showed no significant differences between training conditions.

Was there a difference in participants' reflections of client language in follow up sessions depending on training condition?

Collapsing across all time points, the frequency of the participants' reflections of client CT did not differ between groups as hypothesized (b = 0.037, SE = 0.097, p = 0.703, 95% CI [−0.155 to 0.230], d = 0.062). However for reflections of ST, there was a significant difference such that participants in the LEAF-MI group gave fewer reflections of sustain talk than those in the MI-AU training (b = −0.257, SE = 0.114, p = 0.025, CI [−0.032 to 0.481], d = −0.369).

Did the language of clients in follow up samples differ depending on training condition of the participants?

For the 3 month follow up, the frequency of client CT did not differ significantly in the treatment sessions as a result of training condition, contradicting our hypothesis (b = −0.0857, SE = 0.0923, 95% CI [0.765, 1.102), T = −0.929, p = 0.355. However, ST was significantly lower for clients of participants trained in the MI-LEAF condition (b = −0.1008, SE = 0.0179, 95% CI [0.873, 0.937), T = −5.629, p < 0.001) as hypothesized.

This pattern was the same, but less robust, when collapsing across all time points. Frequency of client CT did not differ significantly between the training groups, (b = −0.018, SE = 0.064, p = 0.781, CI [−0.0145, 0.110], T = −0.279, p = 0.781 However, ST was significantly

lower for the clients of participants trained in the LEAF-MI condition (b = −0.175, SE = 0.087, p = 0.046, CI [−0.347, 0.003], T = −2.01, p = 0.046).

Is there evidence for a causal chain implicating specialized training, resulting participant's reflections of client language and the frequencies of client language at the three-month follow-up?

A priori mediation analyses focusing on change talk were not significant (K2 = 0.0295, bootstrap SE = 0.0556, 95% CI [0.000, 0.912]).

For sustain talk, however, the causal chain for a) training and b) subsequent participant focus on sustain talk in follow up sessions and c) client sustain talk during those same sessions was significant (K2 = 0.0833, bootstrap SE = 0.0394, 95% CI [0.0148, 0.1691]).

Specifically, group assignment (C path) predicted client speech in follow up sessions, but this was mediated by the type of reflections used by the provider (B path) such that those who had been trained in the MI Leaf condition offered fewer reflections of sustain talk (A path) (See Table 4).

Discussion

A common question concerning the role of client language in MI is the importance that ought to be ascribed to the counselor's overt attempt to influence it. This study provides support for the contention that client language is directly influenced by counselor intent, and not simply a reflection of other processes occurring during MI sessions. Furthermore, our data suggest that a relatively modest amount of specialized training can increase provider skills for reducing sustain talk, even when increasing change talk does not occur.

As expected, participants in both training groups demonstrated large gains in MI skills after workshop training. These gains in a sample of frontline providers working in public service settings, with little previous exposure to MI, indicate that such improvements after a workshop can be expected even in challenging settings where resources are likely to be limited and client presentations are likely highly heterogeneous. As expected, these skills decayed when consults and feedback were discontinued (Schwalbe et al., 2014), raising concerns about the sustainability of MI practice in such settings (Hall et al., 2015). It is not clear whether the observed skill decay was due to participant indifference or to characteristics of treatment settings that work in opposition to optimal practice after competence in MI has been obtained (Miller and Moyers, 2015b).

With regard to influencing client language, our data indicate that specialized training in the technical component of MI helped providers to differentially recognize and attend to client sustain talk. Providers who received such training had less sustain talk in their follow up work samples (with actual clients) than those who did not receive the specialized training. Further, our casual chain analysis indicates that this reduction in the frequency of sustain talk is at least partially explained by fewer provider reflections of sustain talk – a core MI skill. We conclude that the technical component of MI 1) is teachable, 2) can be

intentionally influenced by providers during treatment sessions, and 3) produces differences in the nature of the offered language of their clients afterwards.

Our hypothesis that change talk would be similarly impacted was not supported. Possible explanations for this finding are that the workshop training for the MI-LEAF group unintentionally emphasized the softening of sustain talk or that participants prioritized that element of training for reasons of their own. For example, it is possible that sustain talk is more prominent and persistent in mandated clients, who may have been overrepresented in the public sector settings used in this study. If so, then providers were appropriately prioritizing a focus on softening sustain talk rather than trying to evoke reasons for change

The hypothesis that addressing sustain talk is the primary concern with mandated or coerced clients complements recent findings that sustain talk, but not change talk, is a predictor of outcome in MI studies (Magill et al., 2014). Such findings contrast with other research indicating that it is change talk that is most important in predicting favorable outcomes (D'Amico et al., 2015; Romano and Peters, 2015), and particularly the momentum of it during treatment sessions (Houck and Moyers, 2015). We note that those studies showing the strongest effect for sustain talk as a predictor of substance use outcomes derive from adolescent and mandated populations, where offenses could be expected to produce less ambivalence and more discord for those receiving MI (Apodaca et al., 2014; Magill et al., 2014). In contrast, findings for change talk seem more likely to include older and self-referred clients where ambivalence might be more prominent than discord (Aharonovich et al., 2008; Campbell et al., 2010; Hodgins et al., 2009; Vader et al., 2010). It is logical that when sustain talk is frequent and strong in the client's initial presentation, the provider should focus on diminishing or weakening it before attempting to evoke change talk. If sustain talk must be softened before change talk can be coaxed, then clients with higher coercion to attend treatment might be receiving exactly the right approach from their language-focused MI providers. This may also explain why ST was more readily affected by LEAF-MI training in the present study. For organizations or individuals attempting to increase competence in the technical component of MI, it is possible that attention to reducing sustain talk will be easier to achieve than increasing change talk.

Several weaknesses are apparent in the study. Primary among them is the lack of a rigorous assessment of participant's language-specific skills at the end of workshop training. In retrospect this would have allowed further exploration of our unexpected findings. Second, the attrition of participants in follow-up work samples raises the possibility of a bias, such that providers who were less skilled at influencing client language did not submit work samples. If true this would mean that the technical component of MI is not necessarily acquired with equal ease in all providers, and perhaps not at all for some. Dunn et al. (2016) have shown that MI skill can vary considerably within providers over sessions, indicating that performance is noisy enough to make signal detection difficult for complex behaviors such as those investigated in this project.

Despite these weaknesses, this study has several important strengths. Even with attrition, the sample provided sufficient power to address the proposed hypotheses. The training was conducted by experts in MI, using empirically-validated protocols adapted from previous

training studies (Miller et al., 2004; Moyers et al., 2008) (study teaching materials available at http://casaa.unm.edu/mimanuals.html). Also, the reliability of the behavioral coding used to construct outcome variables was acceptable, lending confidence in the findings.

The generalizability of these findings is also a strength, because the sample more closely resembles the actual SUD workforce avail-able to most clients than some previous MI training studies. Further, these providers were working in busy public treatment settings and their work samples consisted of real therapy sessions with actual clients struggling with substance use disorders. Compared to participants in the EMMEE study (Miller et al., 2004), they were less educated and less experienced. Further, they did not have to fund their own travel to attend the workshop training, as in previous studies (Miller et al., 2004), increasing generalizability to less affluent providers.

Finally, because this study demonstrates that substance treatment providers can be trained to differentially evoke client language during treatment sessions, it points to the feasibility of a randomized, controlled trial to isolate and manipulate the technical component of MI. Such a project would address the theoretical question about what value is added to the effectiveness of MI by attention to client language, above and beyond the relational focus of the method.

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Table 1

Experimental Training Conditions in the Elicit Study

Training Component	MI AU	MI LEAF
Workshop Content	Language Focus = 5%	Language Focus = 40%
Consultations	Standard: all MI Skills	Client language sole focus
Feedback from worksamples	Did not include client language information	Included counts of client change and sustain talk
Video learning resources	Standard MI DVD format (Miller, Rollnick & Moyers, 1998)	Client language DVD made for Elicit Project (Moyers, Miller & Manuel, 2012)

Table 2

Demographic characteristics of participant-providers

Characteristic	M	SD
Age (years)	45.2	10.4
Years Prior Clinical Experience		
In Mental Health	12.4	8.4
In Substance Abuse	9.7	7.9
Clinical Hours Per Week		
Treating Clients	25.9	11.7
Treating Substance Abuse Clients	22.5	11.4
Prior Hours Spent Learning MI	8.1	10.5
	N	**%**
Gender		
Female	96	62.7%
Male	57	37.3%
Race		
American Indian or Alaska Native	4	2.6%
Asian or Asian American	1	0.7%
Black or African American	9	5.9%
White, not of Hispanic origin	122	80.4%
White, Hispanic origin	9	3.9%
Other	8	5.2%

Table 3

Estimates of inter-rater reliability for the MISC 2.5 Codes

Summary variable	ICC	95% CI	f	M (SD)
CT	0.93	0.90 0.95	19021	31.23 (20.86)
ST	0.90	0.86 0.93	7748	12.72 (12.29)
Follow/Neutral/Ask	0.93	0.88 0.96	45498	74.71 (41.41)
MICO	0.94	0.92 0.96	35055	57.56 (26.73)
MIIN	0.59	0.49 0.68	1573	2.58 (4.14)
Question	0.99	0.98 0.99	25891	42.51 (27.49)
Closed Question	0.97	0.95 0.98	17191	28.23 (21.28)
Open Question	0.89	0.86 0.93	8700	14.29 (10.47)
Reflect	0.95	0.94 0.97	20536	33.72 (19.64)
Reflect CT	0.86	0.82 0.90	5356	8.79 (8.21)
Reflect ST	0.61	0.52 0.71	2289	3.76 (4.84)
Reflect Other	0.87	0.82 0.91	12891	21.17 (14.69)
Simple Reflection	0.74	0.66 0.81	10544	17.31 (13.05)
Complex Reflection	0.75	0.67 0.82	9992	16.41 (11.25)

Note. ICC = intraclass correlation; CT = change talk; ST = sustain talk.

ICC $n = 72$, $k = 6$; f and M $n = 609$

Table 4

Indirect effect of group assignment on client speech via provider speech at the 3-month follow-up

a. Change talk

Variable	Coefficient	95% CI	SE	t	p
Effect of group assignment on reflections of change talk (a path)					
Constant	0.265	0.205 0.324	0.030	8.771	.000
Group	−0.013	−0.096 0.071	0.042	−0.302	.764
Effect of reflections of change talk on change talk covarying for group (b path)					
Constant	0.413	0.308 0.518	0.053	7.780	.000
RefCT	1.628	1.381 1.874	0.125	13.072	.000
Group	−0.059	−0.174 0.056	0.058	−1.012	.314
Total effect of group on change talk (c path)					
Constant	0.844	0.716 0.971	0.064	13.128	.000
Group	−0.080	−0.257 0.098	0.090	−0.886	.377
Direct effect of group on change talk					
Group	−0.059	−0.174 0.056	0.058	−1.012	.314
Bootstrapped indirect effect on change talk via reflections of change talk (κ^2)					
RefCT	−0.030	0.000 0.091	0.056	–	–

b. Sustain talk

Variable	Coefficient	95% CI	SE	t	p
Effect of group assignment on reflections of sustain talk (a path)					
Constant	0.110	0.785 0.142	0.016	6.898	.000
Group	−0.047	−0.091 −0.002	0.022	−2.089	.039
Effect of reflections of sustain talk on sustain talk covarying for group (b path)					
Constant	0.140	0.065 0.215	0.038	3.681	.003
RefST	0.911	0.551 1.271	0.182	5.001	.000
Group	0.037	−0.054 0.127	0.046	0.804	.423
Total effect of group on sustain talk (c path)					
Constant	0.240	0.170 0.303	0.035	6.812	.000
Group	-.006	−.010 0.092	0.049	−0.114	.909
Direct effect of group on sustain talk					

b. Sustain talk

Variable	Coefficient	95% CI	SE	t	p
Group	0.368	−0.054 0.127	.046	0.804	.423
Bootstrapped indirect effect on sustain talk via reflections of sustain talk (κ^2)					
RefST	0.083	0.015 0.169	0.039	–	–

Note. RefCT = reflections of change talk; RefST = reflections of sustain talk