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Bi-directional relationships between client and counselor speech: The importance of reframing

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Abstract

In the study of Motivational Interviewing (MI), counselor skill has been posited to influence client language about change or “change talk”. This study investigates the relationship between a specific counselor behavior, valenced reflective listening, and client change talk in a MI intervention with substance using adolescents. A combination of recorded in-person and telephone ($n = 223$) sessions were sequentially coded using the Motivational Interviewing Skill Code 2.5. Reflections were categorized by valence, meaning they included content that was either moving toward (i.e. positive reflection) or away from change (i.e. negative reflection). Client language was coded as either moving toward change, away from change or neutral about change. Probability analyses showed positive reflections were 11 times more likely to be followed by change talk and 71% less likely to be followed by counter change talk. Negative reflections were 19 times more likely to be followed by counter change talk and 65% less likely to be followed by change talk. Client language was also predictive of counselor reflections, such that positive reflections were 10 times more likely to occur after client change talk and negative reflections were 19 times more likely to follow counter change talk. Since the percentage of change talk expressed in a session has been shown to be positively related to improved behavioral outcomes, counselors should avoid unintentional reflections of counter change talk and use reframing techniques to change the valence of client change language. Implications for MI practice and training are discussed.

Keywords

Motivational Interviewing; Reflective Listening; Change Talk; Reframing

In the United States, reductions in adolescent use of alcohol, tobacco, and other hard drugs have been leveling off while marijuana use has been climbing (Johnston, Bachman, & Schulenberg, 2012). As social service systems try to address these trends, evidence-based

practices (EBP) like Motivational Interviewing (MI) are being mandated or encouraged by state funding agencies. The costs associated with adopting EBPs can place substantial burdens on state, county, and local agencies (Olmstead, Carroll, Canning-Ball, & Martino, 2011), making it imperative that resources be used wisely.

MI is a client-centered counseling style directed at the exploration and resolution of ambivalence about behavior change. Having its roots in Rogerian client-centered therapy (Rogers, 1959), it emphasizes the importance of accurate empathy. It also prescribes the use of MI-consistent (MICO) behaviors such as asking permission before providing advice, affirming the client, and being supportive and emphasizing personal choice and control, while proscribing the use of MI-inconsistent (MIIN) behaviors such as confronting, arguing, directing and warning. Furthermore, it encourages the use of open questions rather than closed questions, and more reflective listening than questioning (Miller & Rollnick, 2002). In fact, quality reflective listening is considered a hallmark of the approach and can be challenging to learn for clinicians, para-professionals and lay persons alike (Miller & Moyers, 2006).

While not all MI efficacy trials have shown positive effects, meta-analyses have shown that MI is more effective than no treatment and requires fewer sessions to achieve comparable results when compared to alternative treatments (Hettema, Steele, & Miller, 2005; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). Further, a growing body of research has identified mechanisms of change at work to produce improved client outcomes. Specifically, it has been shown that the therapist's MI skills are associated with the presence of client change talk, language that expresses the client's desire, ability, reason, need or commitment to change, and the amount of change talk expressed is associated with improved outcomes (Catley et al., 2006; Gaume, Bertholet, Faouzi, Gmel, & Daepfen, 2010; Gaume, Gmel, & Daepfen, 2008; Gaume, Gmel, Faouzi, & Daepfen, 2008; Moyers, Martin, Houck, Christopher, & Tonigan, 2009; Moyers & Martin, 2006; Moyers, Martin, Christopher, et al., 2007). However, less is known about how specific variants of the micro-skills within MI (e.g. reflections, questions, affirmations) impact client language. There is little guidance provided to counselors about how to choose which skill to employ during treatment interactions. For example, when facing an ambivalent statement from a client, should an interviewer choose a reflection supporting change or an expression of empathy? MI theory does not provide a hierarchy for selecting among the array of appropriate responses. Greater understanding of MI skills at a micro level can enhance our ability to efficiently train practitioners and improve client outcomes.

The skill of reflective listening merits close attention since it is highly valued in MI (Miller & Rollnick, 2012). Reflective listening is commonly conceptualized by the accuracy of the reflection; however, given the emphasis of selectively reinforcing a client's motivation toward change, the valence, or direction that the reflection suggests, might be as important in understanding the role of reflective listening in MI. The direction of language, toward or away from change, has been a large focus of analyses of client language (e.g. change talk and counter change talk), but has not been as widely explored in counselor language. In this study, we investigate the role of valence, a clinician's choice to reflect client statements either toward or away from change. For example, in response to hearing "Quitting is too

hard,” a negatively valenced reflection might be “It’s something you don’t think you can do.” Conversely, in response to hearing “I really need to do this,” a positively valenced reflection might be “You’re ready for a change.” It is even more challenging for counselors when clients present language toward and away from change in the same sentence, forcing the counselor to choose which aspect to reflect. Understanding valenced reflections may allow MI trainers and practitioners to hone their efforts to improve practice and enhance treatment effectiveness.

The notion of valence is also important in the practice of reframing. While reframing is common to many forms of counseling, its role in MI differs as it is centrally related to the emphasis on enhancing change talk in this approach. Reframing occurs when a counselor responds to a client’s negative statement by shifting its meaning in a positive direction. In MI these “negative” statements are conceptualized as counter change talk, or language away from change, and the reframe would lead to change talk or language toward change. For example, if a client states that “Quitting is too hard” (counter change talk), the counselor might reframe it to “You’re really trying” (positive reflection). While it is most common to shift language to become more positive, a therapist could also reframe positive client speech in a negative direction.

Reframing and valence are prominent in the MI seminal text (Miller & Rollnick, 2002, 2013) and are included in the Motivational Interviewing Skill Code (MISC; Miller, Moyers, Ernst, & Amrhein, 2003), a coding scheme commonly used for research purposes; however, they are not specifically addressed in the Motivational Interviewing Treatment Integrity (MITI; Moyers, Martin, Manuel, Miller, & Ernst, 2007). Since the MITI is the most widely used coding instrument to assess counselor fidelity to MI, the absence of valenced reflection and reframing as unique skills may influence how important it is considered by practitioners. In some cases, these skills may be considered advanced, so that practitioners may not be exposed to them in introductory training. However, they are arguably important as they can redirect the valence of a client’s next statements and impact the overall climate of the session (Robbins, Alexander, Newell, & Turner, 1996; Robbins, Alexander, & Turner, 2000).

Beyond establishing an association between client language and clinician behaviors, new research is beginning to focus on the question of whether there is a causal relationship between them. Can counselors intentionally influence client language, or is change talk simply a reflection of some third variable, such as motivation to change? Glynn and Moyers (2010) conducted an experimental manipulation using an ABAB design to investigate whether the use of MI would produce significantly more change talk than the comparison functional analysis (FA) intervention. They found 13% more change talk in the MI condition compared to the FA condition. More commonly, studies of the temporal relationships between counselor and client language have been conducted using sequentially coded data of interactions between therapists and clients in MI sessions. In these studies, clinician speech is typically coded into five general categories, MI consistent (MICO), MI inconsistent (MIIN), Reflections, Questions, and Other behaviors; while client language is put into three categories, change talk, counter change talk, and language unrelated to change (follow/neutral). These studies confirm that MICO behaviors are more likely to be followed

by change talk, while MIIN behaviors are more likely to be followed by counter change talk (Gaume et al., 2010; Gaume, Gmel, Faouzi, et al., 2008; Moyers & Martin, 2006).

The association between reflective listening and change talk has also been demonstrated in studies using frequency count data. In a sample of African American smokers, Catley et al. (2006), using the MISC, conducted a series of regression models and found that an inclusive category of reflection predicted change talk ($B = .57, SE .10, p < .001$). More specifically, findings about the valence of reflections were reported by Moyers et al. (2009) in their analysis of coded sessions of adult alcohol users. They found that change talk followed positive reflections 44% of the time and negative reflections only 7% of the time, and counter change talk followed positive reflections 3% of the time and negative reflections 38% of the time. Similar patterns were seen in Moyers, Houck, Glynn, and Manuel (2011) where coded recordings showed change talk followed positive reflections between 46-51% of the time (across both conditions) and was not significantly associated with negative reflections, while counter change talk followed negative reflections 37% of the time and was not significantly associated with positive reflections.

Taken together, these findings support the hypothesis that counselor reflections may cause client change talk. However, evidence suggests that the reverse pattern may be true as well, client attributes and speech may influence counselor behavior. Waltz, Addis, Koerner, & Jacobson (1993) argued that therapists' fidelity to treatment models may be impacted by client difficulty or problem severity. Imel, Baer, Martino, Ball, and Carroll (2011) found that counselors showed large variability in Motivational Enhancement Therapy fidelity and competence when treating clients who differed in drug use frequency and initial motivation. Meanwhile in another study of a brief motivational interviewing intervention, Gaume, Gmel, Faouzi, et al. (2008) found that among highly trained counselors, client language did not significantly influence the use of MI inconsistent behaviors.

The present study replicates previous research by examining bi-directional associations between clinician and client language and extends the MI literature to include the first look at reframing using paired sequences of client and counselor language. Based on our review of the literature, we hypothesize that a) counselor positive reflections will more frequently precede change talk than negative reflections (counselor influences client), b) client change talk will more frequently precede positive reflections than negative reflections (client influences counselor), and c) that when counselors respond with the opposite valence of a client statement, as done in reframing, the direction of client language will be more frequently associated with this new direction.

Methods

Sample and Procedures

In order to investigate these relationships, we used a subsample of MI sessions taken from the MI condition of the most recent trial of Project Toward No Drug Abuse, a classroom-based substance use prevention program, designed to investigate whether a three-session, MI- booster enhanced program effects (Sussman, Sun, Rohrbach, & Spruijt-Metz, 2012). This cluster-randomized controlled trial consisted of 24 continuation high schools (CHS) in

three conditions, classroom-only, classroom + MI, and assessment-only control. CHSs have notably higher drug use prevalence rates than regular high schools and serve students unlikely to graduate from traditional high school due to lack of credits and excessive absences. All study procedures were approved by the University of Southern California's Institutional Review Board. For more details on school selection see Lisha et al., (2012).

The intervention consisted of three 20-minute contacts conducted at three- to four-month intervals. Students received the first contact at school within three days of the classroom-based program, while the second and third contacts were conducted over the telephone. Conversations were recorded with either handheld devices in person or recorded telephone lines. Multiple attempts were made to reach each student during each contact period. Each contact was structured to focus on the use of an exercise (pros and cons, values, or character strengths) designed to elicit change talk about a behavior the student was interested in changing. Of the 1040 contacts in the parent study, approximately 30% focused on the use of substances – marijuana, alcohol, tobacco or other illicit substances. Mean number of contacts per participant was 1.8 and mean length of conversations was 18.9 minutes.

Nineteen interventionists were provided 40 hours of training. All interventionists had at least a four-year college degree. Initial training and ongoing supervision/coaching was conducted by a member of the Motivational Interviewing Network of Trainers. Overall, the MI delivered met the MI fidelity standards identified in the Motivational Interviewing Treatment Integrity (MITI 3.0; Moyers, Martin, Manuel, Miller, & Ernst, 2007). Further detail on the development, implementation, and fidelity of the MI booster intervention is published separately (Barnett et al., 2012). Table 1 provides the MITI fidelity standards and fidelity measures for the sample used in this study. All measures used in this analysis exceeded the standards.

For this study, only MI sessions where the behavioral target was substance use ($n = 223$, representing 170 individual subjects and 17 interventionists) were included in the sample with an average age of 16.7 years, 70% male, and 71% Latino. Substance use targets were identified by the interventionists and confirmed by the coders. In order to be considered a substance use target, substance use had to be addressed with the exploration exercise used during the session. For example, if a participant reported that he or she had cut back on cigarette use, and the interventionist proceeded to explore a non-substance use topic, this session would not be considered a substance use target. All available conversations ($n=223$) regarding substances were included in the analysis. Eighty-four percent of the sample participated in a face to face interview and 75% of the sample represented conversations occurring at school immediately following the classroom based portion of the program.

Coding and Parsing

We provided 40 hours of initial training in the coding instrument and software to five undergraduate and graduate students. Weekly coding meetings were held throughout the project to improve or maintain reliability. Final coding decisions were made by the supervisor. Coders practiced on a series of non-substance use recordings until their inter-rater reliability was at criterion of 0.60 using established intraclass correlation (ICC) guidelines (Cicchetti, 1994).

We coded the sample using the MISC 2.5 (Houck, Moyers, Miller, Glynn & Hallgren, 2013) from the Center on Alcoholism, Substance Abuse and Addictions (<http://casaa.unm.edu/download/misc25.pdf>). The MISC 2.5 is a hybrid of the MISC 2.1 and the Sequential Code for Observing Process Exchanges (MI-SCOPE; Martin, Moyers, Houck, Christopher & Miller, 2005) designed to optimize the features from each coding systems to allow sequential coding of MI sessions. Specifically the MISC 2.5 allows for the capture of specific behaviors from the MISC 2.1, as well as valenced reflections and temporal order from the SCOPE. Like all versions of the MISC, it codes counselor and client language into mutually exclusive and exhaustive categories. Coding was performed in two passes. In the first pass, coders parsed the entire recording into utterances, or thought units, and then completed a set of six Likert global ratings of counselor interpersonal skill and one Likert measure rating client self-exploration. In the second pass, a different coder applied behavioral codes to each counselor utterance and each client utterance.

Coding was conducted using the CASAA Application for Coding Treatment Interactions (CACTI; Glynn, Hallgren, Houck, & Moyers, 2012). This software automates the parsing of recordings and stores sequential coding of each utterance. Although CACTI software does not require or utilize transcripts, we transcribed our entire sample of recordings to allow coders to refer to the transcription in difficult cases.

Client Language

According to the MISC 2.5, all client utterances are categorized as either change talk (CT), counter change talk (CCT), or unrelated to change (follow/neutral; FN). Determining CT requires that coders know the target behavior before coding each recording. As previously mentioned, interventionists documented targets at the time of the session, and these classifications were confirmed by the parser. Disagreements were resolved by a supervisor. As done in Moyers et al. (2009), we collapsed all CT categories into CT and CCT for increased reliability and ease of interpretation. Component categories of change talk included statements of commitment (“I will cut back on smoking”), taking steps (“I’ve already slowed down”), desire (“I want to quit”), ability (“I think I can do it”), reason (“I have to stop for my health”), need (“I need to cut back so I can keep a job”) and “other” statements that do not fall into the previous categories. Components of CCT included statements counter to commitment (“There’s no way I will stop”), taking steps (“I had a drink last night”), desire (“I really don’t want to make a change”), ability (“There is no way I’d be able to give it up”), reason (“It’s not affecting my health”), need (“I really don’t think I need to change”), or “other” statements about change.

Counselor Behavioral Skill Counts

Each counselor utterance was assigned one of 17 counselor codes, including 8 codes specifically for reflections. Reflections were coded as either simple or complex with a designation for either being positive, negative, neutral, or both positive and negative valence. For the purposes of these analyses, two summary variables were made from the reflection data: 1) all reflections with positive valence were collapsed into a positive reflection category (RPOS); and 2) all reflections with a negative valence were collapsed into a negative reflection category (RNEG). Neutral and both positive and negative

reflections were excluded from analysis. In other published literature positive reflections and negative reflections have been called a Reflection of Change Talk (RCT) and Reflection of Counter Change Talk (RCCT), respectively (Moyers et al., 2009). We chose to refer to them as positive reflections (RPOS) and negative reflections (RNEG) to highlight the concept of valence under investigation in this study.

Coding Reliability

We randomly selected 20% of our final sample using a random number generator for “double” coding. Each recording was to be coded by all five coders, resulting in 10 pairs of coders. We used three measures of reliability. Percent agreement and Cohen's Kappa s were calculated using the nominal data. Kappa criteria states .70 or higher (excellent), .41-.69 (acceptable), and .40 or below (unacceptable) (Cohen, 1960). For comparability with other MI studies, inter-class correlations were calculated using frequency counts of the sequentially coded data (Hannöver, Blaut, Kniehase, Martin, & Hannich, 2013). Cicchetti's (1994) criterion identifies ICCs below .40 as poor, .40–.59 as fair, .60–.74 as good, and above .75 as excellent.. For our data, percent agreement averaged 75% and overall Kappas averaged .66. Average ICCs were all in the excellent range. Individual kappas for each code and final ICCs are presented in Table 2 along with minimum and maximum values.

Analytical Approach

Conditional probabilities (CP) were calculated using GSEQ 5.1 software (Bakeman & Quera, 2002). CPs measure the probability that a specified counselor behavior will precede a certain client behavior or vice versa. The probability is defined by the equation:

$$P(t|g) = P(t \cap g) / P(g) \quad \text{where } t \text{ is the target and } g \text{ is the given.}$$

Three contingency tables were constructed with the variables of interest (Client: change talk (CT), counter change talk (CCT), follow/neutral (FN); Counselor: reflection positive (RPOS), reflection negative (RNEG), counselor other (C Other). The first table, a 3×3 contingency, used the counselor behaviors (RPOS, RNEG, C Other) as the given behaviors and the client language codes (CT, CCT, FN) as the targets. The second table, also 3×3 , represented the client language as the given and counselor behavior as the target. The third table was a 2×3 contingency table that chained together client language and a counselor response as the given (CT + RNEG; CCT + RPOS) and calculated probabilities that the target client language would occur (CT, CCT, FN).

For each contingency table we calculated the number of observed and expected transitions between given and target codes. Expected transitions were calculated as the probability of the target behavior multiplied by the frequency of the given behavior, resulting in the number of occurrences expected if there were no association between the given and target codes. CPs are calculated by dividing the observed number of transitions by the total number of transitions per given code, hence the sum of all CPs for a given code equals 1. Odds ratios and confidence limits were calculated by reducing each contingency table to a 2×2 contingency, assessing whether the transition of interest occurred or not. By so doing, it is

possible to determine whether the behavior is more or less likely than chance to occur (Bakeman & Quera, 1995).

Results

The transition matrix included 14,505 transitions taken from 223 sessions. We analyzed both transitions where speech transitioned from counselor to client and from client to counselor. We analyzed simple transitions between two codes (e.g., from change talk to positive reflection) and transitions between pairs of codes and a third code (e.g., from counter change talk chained with positive reflection, or reframing, to change talk). Table 3 provides observed and expected frequencies, and odds ratios with corresponding confidence limits. Confidence limits that do not include one indicate that the transition is significantly different than would be expected by chance. Data showed that positive reflections were almost *11 times* more likely than chance to be followed by change talk (OR=10.93, CP=.74), 71% less likely to be followed counter change talk (OR=.29, CP=.05), and 85% less likely than chance to be followed by follow/neutral (OR=.15, CP=.20). While negative reflections were *19 times* more likely than chance to be followed by counter change talk (OR=18.99, CP=.68), and 65% less likely to be followed by change talk (OR=.35, CP=.14), and 84% less likely to be followed by follow/neutral (OR=.16, CP=.19).

Counselors' language also tended to match clients' preceding language. Counselors were almost *10 times* more likely to respond to change talk with a positive reflection (OR=9.9, CP=.44), 69% less likely to respond with a negative reflection (OR=.31, CP=.04), and 76% less likely to respond with another type of statement (OR=.24, CP=.52). Counselors were *19 times* more likely to respond to counter change talk with a negative reflection (OR=18.6, CP=.41), 70% less likely to respond with a positive reflection (OR=.30, CP=.07), and 66% less likely to respond with another type of statement (OR=.34, CP=.52). When a client made a neutral statement, counselors were *7 times* more likely to respond with something other than a positive or negative reflection (OR=7.4, CP=.89). Counselors were 83% less likely to respond with a positive reflection (OR=.17, CP=.07), and 80% less likely to respond with a negative reflection in this situation (OR=.20, CP=.03).

To examine whether positive reframing was associated with a switch from previous client counter change talk to change talk, the conditional probability between an instance of counter change talk and a positive reflection and following client change talk was calculated. When a counselor positively reframed a client's counter change talk, the client was almost 4 times more likely to follow with change talk (OR=3.8, CP=.68). Negative reframing was possible as well. If a counselor responded to a client's change talk with a negative reflection, the client was almost 8 times more likely to follow with counter change talk (OR=7.8, CP=.56).

Discussion

Our data indicate that positive reflections are much more likely than negative reflections to be followed by change talk, a finding that is consistent with the current emphasis in MI training to encourage change talk by reflecting it (Miller & Rollnick, 2013). Our data also

show that counselors are equally likely to be influenced by client language as the other way around. The most common pattern for both counselors and clients is to follow what preceded. However, we also saw correlations suggesting that counselors have the ability to change the direction of the client language. A look at reframing showed that even when a client offered counter change talk, the counselor could respond with a positive reflection and increase the probability change talk from the client.

According to Miller and Rollnick (2002), reframing reinterprets or transforms the client's words "in a new light that is more likely to be helpful and support change" (p. 103). Training practitioners to respond to client counter change talk by reflecting some aspect of change talk could result in increased utterances of change talk while demonstrating understanding and empathy. Although this is a sophisticated skill that may be difficult to inculcate through training, enhanced ability to reframe is likely to result in increased change talk.

This research also highlights the significant likelihood that a client will continue to talk about not changing if a counselor reflects counter change talk. Counselors reflect counter change talk for both intentional and unintentional reasons. First, MI practitioners may choose to reflect counter change talk to demonstrate empathy and understanding for the sake of the client/counselor relationship. Second, counselors may be using an amplified reflection, which involves reflecting counter change talk in an exaggerated fashion, as a strategy for moving beyond a clinical impasse (Miller and Rollnick, 2002). Third, they may be employing double-sided reflection where the counselor reflects both change talk and counter change talk simultaneously, to highlight the client's ambivalence about change. Due to the low frequency of double-sided reflections in our sample we were unable to investigate this empirically.

What seems more problematic is the unintentional use of negative reflection that both follows and precedes further statements of counter change talk. Negative reflection may indicate a novice use of MI where a counselor engages in rote repetition of client statements and lacks the directive element of MI. This phenomenon is commonly expressed by trainees who feel they are reflecting what is being said, but not making progress toward behavior change. Negative reflection may encourage counter change talk by simply attending to it, causing the client to continue discussing reasons not to change because the counselor has signaled that it is important. This issue is central to the ongoing debate regarding the use of decisional balance exercises, as these exercises intentionally elicit counter change talk as a way to help clients think through the consequences of behavior change (Miller & Rollnick, 2009).

When thinking about the implications of these findings for clinical practice, it is helpful to consider the four processes of MI (engaging, focusing, evoking and planning) as outlined in the 3rd Edition of the MI text (Miller & Rollnick, 2012). While this analysis does not differentiate at which stage of the intervention the change talk or reflections occurred in, one might expect that the treatment of counter change talk would differ between the engaging and evoking stage. In the engaging stage one might expect to see more reflections of counter change talk as the counselor works to build rapport with client giving equal attention to their

concerns and barriers and their desires and motivation. Later during the evoking stage, the emphasis shifts to building motivation for change. At this point reinforcing change talk becomes the primary goal so that preferential treatment for change talk, over counter change talk, may be warranted. Future research could examine how the treatment of counter change talk differs during the various stages of an intervention.

Findings from this study are consistent with Moyers et al. (2009) that showed a reciprocal relationship between counselor and client language. Both studies found that for each transition the magnitude of the probability was larger that the client change language would follow the counselor's language than vice versa (i.e. the magnitude of the probability that positive reflections would be more likely to be followed by change talk was greater than the magnitude that client change talk would be followed by positive reflections). This finding suggests that counselor behaviors are more strategic than just following. This first sequential look into reframing supports that regardless of the client's preceding statement, counselors are able to change the direction of client language by offering a reflection in the opposing direction. For example, if a client offered change talk and the counselor responded with a negative reflection it was 8 times more probable than chance that the client would next offer counter change talk (following the counselors lead).

Findings from this data should be considered in light of a unique sample, approximately 71% Latino and 70% male. Though MI interventions have been shown to be effective across ethnicity and gender, with some meta-analytic evidence for increased efficacy with minority groups (Hetteima, et al., 2005), no published MI studies have investigated differences in counselor/client language patterns based on ethnicity or gender. If the process of MI differs with minority populations, findings from this study may be limited in generalizability. Future research should investigate whether these differences exist.

Findings should also be considered in light of some limitations in our methodology. First, there was some self-selection bias in this sample, as approximately 18% of the participants declined to be recorded, leaving open the possibility that those who declined may have demonstrated different response patterns to clinician statements. Second, in order to increase sample size and power we included all conversations pertaining to substance use. This choice resulted in 25% of the participants having more than one session in the sample as well as a mixture of in-person and telephone conversation, with 86% of the sample participating in face-to-face interviews. Interpersonal dynamics between the counselor and client may have differed for those participating in more than one session. However, since the vast majority of the sample only participated in one session, we believe that our findings represent a conservative estimate and were not overly influenced by the rapport or other characteristics that may have influenced a willingness to participate in more than one session. In addition, while in-person sessions may have benefited from non-verbal communication, which the telephone calls lacked, we believe our choice to include both types of sessions in our analysis, represents real-world challenges and variation that occurs in treatment programming. Third, while all average inter-rater reliability statistics were in the excellent range, one minimum statistics was poor. While we do not believe this negatively reflects on our findings, it is important to note that in this type of study fidelity in coding is as important and as difficult to achieve as fidelity in MI delivery. Fourth, though

conditional probabilities do represent a time sequence between two variables, they only measure the association between them, and not whether one causes the other. Only experimental manipulations that investigate differential responses to the various types of reflections can begin to establish a causal relationship. Finally, since these analyses do not control for any other variable, the likelihood of responding with change talk may be attributable to some other factor, namely client readiness to change, rather than counselor skills. Unfortunately, we did not measure client readiness to change.

The results of this study suggest that the valence of a reflection may be important in eliciting change talk. A greater emphasis on valence might be a welcome relief to MI trainers and MI coders alike. In a study by Moyers, et al. (2011) they found that providing training focused on change talk increased the amount of change talk elicited by trainees compared to a training-as-usual control (Moyers et. al., 2011). Also valenced reflections appear relatively easy for coders to capture, as suggested by the reliability estimates derived from this study. These findings also support the recommendation by Glynn and Moyers (2011) for a new rating system to evaluate counselors' responses to change talk. At present, the MITI is the primary tool used to establish fidelity to MI. However, the MITI does not require coders to know the targeted behavior change, so valenced reflection cannot be evaluated. The clinician's ability to influence the direction of the client's language may be as important as empathy in determining the success of a motivational interview.

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Table 1

MI Fidelity Results*

	MITI Fidelity Standard	Sample Average	Std. Dev
Percent MI Adherent Behaviors	90%	99%	0.07
Percent Open Question	50%	57%	0.18
Percent Complex Reflection	40%	53%	0.26
Reflection to Question Ratio	1.0	1.33	0.68

* Note: Fidelity measures were calculated using existing MISC 2.5 data and then compared to MITI fidelity standards.

Table 2

Inter-rater Reliability Statistics

	Average	Min	Max	ICC
Overall Kappa	0.66	0.43	0.77	
Percent Agreement	75%	51%	82%	
Individual Kappa				
CT	0.68	0.60	0.78	0.92
CCT	0.66	0.61	0.71	0.86
FN	0.65	0.53	0.73	0.88
RPOS	0.61	0.45	0.75	0.84
RNEG	0.62	0.44	0.72	0.82
C Other	0.68	0.25	0.82	NA*

Note: CT = Change Talk, CCT = Counter Change Talk, FN = follow/neutral (client language unrelated to change), RPOS = Reflection Positive, RNEG = Reflection Negative, C Other = other counselor behavior, NA = Not Available.

* An individual ICC was not calculated for C Other, as it represents a composite category for all remaining counselor behaviors, not an unique code.

Table 3

Transitions between Client and Counselors

Initial event → subsequent event	Observed frequency	Expected Frequency	Conditional Probability	Odds Ratio	Confidence Limits
Counselor Language on Client Language					
RPOS → CT	1768	706	0.74	10.93	9.87-12.10
RPOS → FN	483	1328	0.20	0.15	.14-.17
RPOS → CCT	130	348	0.05	0.29	.25-.35
RNEG → CT	160	348	0.14	0.35	.30-.42
RNEG → FN	220	655	0.19	0.16	.14-.19
RNEG → CCT	795	172	0.68	18.99	16.59 - 21.73
Client Language on Counselor Language					
CT → RPOS	1868	777	0.44	9.90	8.99-10.90
CT → RNEG	154	365	0.04	0.31	.26-0.37
CT → C Other	2199	3079	0.52	0.24	.22-0.26
CCT → RPOS	139	359	0.07	0.30	.25-0.36
CCT → RNEG	792	168	0.41	18.63	16.33-21.26
CCT → C Other	1020	691	0.52	0.34	.31-0.38
FN → RPOS	599	3079	0.07	0.17	.15-0.19
FN → RNEG	278	1423	0.03	0.20	.17-0.23
FN → C Other	7112	5828	0.89	7.44	6.83-8.11
Reframing (Client Language + Subsequent Counselor Language) on Client Language					
CCT + RPOS → CT	70	50	0.68	3.78	2.23-6.42
CCT + RPOS → CCT	15	31	0.15	.24	.13-0.46
CCT + RPOS → FN	18	21	0.17	.71	.38-1.34
CT + RNEG → CT	18	48	0.18	.10	.05-.19
CT + RNEG → CCT	56	30	0.56	7.75	4.26-14.12
CT + RNEG → FN	26	20	0.26	1.68	.91-3.09

Note: CT = Change Talk, CCT = Counter Change Talk, FN = client language unrelated to change, RPOS = Reflection Positive, RNEG = Reflection Negative, C Other = other counselor behavior.