

THE RELATIONSHIP BETWEEN CHANGE TALK DURING MOTIVATIONAL
INTERVIEWING AND HIV MEDICATION ADHERENCE

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ABSTRACT

Although studies have demonstrated that change talk (CT) and sustain talk (ST) are related to behavior change in multiple addictive behaviors, few have investigated the relationship between change talk and outcome in health promotion. This is the first study to investigate whether CT and ST are related to HIV medication adherence in a sample of individuals recruited to participate in an ART adherence intervention. MI session tapes from 92 HIV-positive patients were coded for frequency of utterances expressing desire, ability, reasons, need, commitment, other, and taking steps to adhere/not adhere to an ART medication regimen. Strength of language as well as summary scores for both frequency and strength ratings were calculated. Adherence was assessed at Week 2 and Week 12. There was a significant relationship between Total ST and adherence at Week 2. Additionally, multiple regression with bootstrapped standard errors showed that Taking Steps ST was negatively related to adherence at both Week 2 and Week 12. Finally, Taking Steps Strength was related

to adherence at Week 2 only. Findings from this study support the need for coding for individual change talk categories to determine what individual forms of change talk are related to health behaviors. The identification of Taking Steps ST as a predictor of poorer adherence suggests that Taking Steps ST might be an indicator of barriers to adhere to ART regimens.

APPROVAL PAGE

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CHAPTER 1

INTRODUCTION

Motivational Interviewing (MI) is a client-centered, directive approach for enhancing intrinsic motivation to change by resolving ambivalence. Meta-analyses have found evidence for the efficacy of MI in a number of different behaviors such as smoking cessation, weight loss, and adherence for medications for diabetes, asthma, and schizophrenia (Kemp, Kirov, Everitt, Hayward, & David, 1998; Rosen, Ryan, & Rigsby, 2002; Williams, Roden, Ryan, Grolnick, & Deci, 1998).

Although there is strong evidence for the efficacy of MI, its mechanisms of action are not clearly established. A leading hypothesized mechanism is based on self-perception theory (Bem, 1972) which suggests that individuals infer that they do or do not want to change based on what they verbalize. Consistent with this, one of the key goals in MI is the facilitation of client statements in favor of change (which is called change talk, CT), and avoidance of the facilitation of client statements against change (which is called sustain talk, ST). As a result, client language, specifically change talk, has become a promising candidate for consideration as a causal mechanism for MI (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003).

Amrhein et al. (2003) analyzed client language in a randomized-controlled trial on the effects of MI on drug use. The authors developed several categories of CT including Commitment, Desire, Ability, Need, Readiness, and Reasons. Furthermore, they rated the intensity of the clients' utterances and found that outcomes were associated with the type and strength of the CT utterance. Specifically they found that preparatory language (Desire,

Ability, Reasons, and Need) predicted statements of commitment; and statements of commitment predicted later drug use (Amrhein et al., 2003).

Although subsequent research has not provided evidence for the specific model proposed by Amrhein et al. (2003) in which strength of commitment language was the key mediating type of change talk, numerous studies have found the various forms of change talk to be predictive of behavioral outcomes. Using the Motivational Interviewing Skill Code (MISC v. 1.0-2.1; Miller, Moyers, Ernst, & Amrhein, 2008) commitment language frequency and strength have been predictive of gambling and drug use outcomes (Hodgins, Ching, & McEwen, 2009; Aharonovich, Amrhein, Bisaga, Nunes, & Hasin, 2008). Studies have also found evidence that the average strength of the “*ability*” to change category of change talk as well as both the strength and frequency of expressed *lack of ability* (referred to as sustain talk; ST) have predicted drinking and substance use outcomes (Gaume, Gmel, & Daeppen, 2008; Baer et al., 2008). The frequency of the *reasons, desire* and *desire not to change*, as well as the strength of *desire* and *reason* have also predicted alcohol and illicit substance use (Baer et al., 2008; Walker, 2011). In addition a number of factors derived from factor analyses of these categories of CT and ST as well as some additional categories (*taking steps*: actions that the individual has already taken in the very recent past that is tied to the target behavior and *other*: general language or attitude about the behavior) have also been predictive of either short or long-term drinking outcomes (Martin, Christopher, Houck, & Moyers, 2011). These findings in which a variety of forms of change talk were predictive of outcomes are also consistent with other studies that have used a different change talk coding scheme derived from the MISC (the Sequential Code for Process Exchanges: SCOPE; Martin, Moyers, Houck, Christopher, & Miller, 2005) to identify total CT and ST. Total CT

was found to predict positive drinking outcomes (Moyers et al., 2007; Moyers, Martin, Houck, Christopher, & Tonigan, 2009) and total ST was found to predict poorer drinking outcomes (Moyers et al., 2007). Further more, using the MISC 2.1, Vader, Walters, Prabhu, Houck, and Field (2010) also found support for total change talk to be associated with drinking outcome.

One important gap in this literature is that prior studies of change talk, with only two exceptions, have involved addiction outcomes. In light of the evidence that MI is differentially effective across different behavioral domains (such as substance use versus health promotion; Reniscover et al., 2002) it is possible that its mechanism of action is weaker or different in different domains. Given the widespread use of MI in health contexts such as dietary change, smoking, and medication adherence (Rosenbek Minet et al., 2011; Katzman et al., 2010; Chacko et al., 2010; Alexander et al., 2010; Otto et al., 2009; Catley et al., 2006) there is a need to examine the role of change talk in predicting health behavior change outcomes. Health behavior change often does not involve many of the complexities of behavior change in addiction such as withdrawal, perceived loss of control, stigma, and social consequences (Sussman & Sussman, 2011; Sussman & Ames, 2008; APA, 2000; Orford, 2001; Marlatt, 1985) which may alter the way behavior change occurs in response to treatment. For example, change talk may be easier to elicit in health behavior change than addiction contexts, but the relationship with outcomes could be weaker if change talk is less meaningful. Alternatively, if health behavior change clients are generally less ambivalent or faced with fewer barriers to change (i.e. psychological) than those struggling with addiction (Reniscover et al., 2002), their momentary expressions of interest in behavior change may be more easily translated into subsequent behavior change. In order to explore the role of

change talk in a health behavior change context this study aimed to examine the relationship between change talk and anti-retroviral (ART) medication adherence.

Client speech was drawn from a randomized-controlled trial of Motivational Interviewing for increasing ART medication adherence in a sample of HIV+ individuals. With the development of ART, HIV+ patients have the opportunity to control their disease; however the benefits of ART are dependent on strict adherence (i.e. 95% adherence of doses taken correctly). Previous studies of MI for ART adherence have found increased adherence rates, decrease viral load, and increase in CD4 cell counts as result of MI intervention (Hill and Kavookjian 2012; DiIorio et al., 2008; Parsons, Golub, Rosof, & Holder, 2007; Parsons, Rosof, Punzalan, Di Maria, 2005). The RCT for the present study compared MI with and without modified directly observed therapy (where patients are observed or confirm taking their doses on a daily basis that they have taken at least one dose a day) to standard care.

Given the findings in the addictions literature, we hypothesized that the frequency of total CT and ST as well as its respective subtypes will predict adherence outcomes with CT having a positive association and ST having a negative association. Because it is still unclear which CT components are most predictive of outcomes the study also explored which individual components or combinations of components have the strongest association with adherence. No hypotheses were made for this exploratory aim. Finally, because some previous studies in addiction outcomes have also examined strength of CT as a predictor, the total strength of CT and ST language, as well as the strength of the individual components were also examined as a predictor of adherence.

CHAPTER 2

REVIEW OF THE LITERATURE

Motivational Interviewing

Motivational Interviewing (MI) is a collaborative, goal-oriented style of communication designed to strengthen an individual's personal motivation for and commitment to change by addressing and resolving their ambivalence about change (Miller & Rollnick, 2012). The approach is both client-centered and directive. It was born out of the addictive behavior literature but has now been applied to other behaviors.

According to Miller and Rollnick (2012) the underlying philosophy or "spirit" of MI includes partnership, acceptance, compassion, and evocation. Partnership emphasizes the collaborative nature of the approach where the interviewer creates a positive atmosphere that is conducive to change. Acceptance emphasizes the value of the person's absolute worth, expressing an active interest in and effort to understand the individual (accurate empathy), honoring the person's autonomy, and acknowledging a person's strengths and efforts. Compassion emphasizes the active promotion of the person's welfare and the commitment to pursue their best interest. Finally, the task of the interviewer is to evoke and strengthen the individual's change motivations that are present within them (Miller & Rollnick, 2012).

There are four major processes of MI: engaging, focusing, evoking, and planning. By engaging, the interviewer establishes a connection where they are able to help the client by working together. Developing a working relationship is a prerequisite for the other three processes (Miller & Rollnick, 2012). The interviewer also helps develop and maintain a specific direction in the conversation (focusing). By providing focus on a particular change, the interviewer is also able to elicit the client's own motivations for change (evoking). When

the individual reaches a threshold where they are ready to change, the conversation turns from talking about “why” to change to “when and how” to change. The planning process focuses on developing commitment to change and a specific plan of action (Miller & Rollnick, 2012).

There are five core communication skills that define the practice of MI: asking open questions, affirming, reflective listening, summarizing, and informing and advising. Open questions invite elaboration and allow the interviewer to gather more information. Affirmations recognize and highlight the client’s strengths and efforts. With reflective listening, the interviewer selectively reflects statements that allow the client to hear their own thoughts and feelings and keeps them elaborating. Summaries pull information together and suggest links between statements that the client has made. They also strengthen the therapeutic relationship by demonstrating to the client that the interviewer has been listening carefully. Finally, the focus of informing and advising is to provide the client information with their permission or when they seek it and to understand the client’s perspective on this information so that they could reach their own conclusions about any information provided (Miller & Rollnick, 2012).

Efficacy of MI

MI has been used in a variety of health behavior interventions, including smoking cessation (Ahluwalia et al., 2006; Lloyd-Richardson et al., 2009; Soares de Azevedo et al., 2010; Wu et al., 2009), diabetes self-care (West, DiLillo, Bursac, Gore, & Green, 2007), and medication adherence (Ogedegbe et al., 2008). To date, there are more than 1,200 publications on this treatment method, including more than 200 RCTs (Miller & Rollnick, 2012). The strongest evidence has been found in addictive behavior literature, however small

to medium effect sizes have been found across a variety of behaviors (Miller & Rollnick, 2012; Lundahl & Burke, 2009). For example, Lundahl and Burke (2009) found that MI is at least as effective as other treatments and significantly better than no treatment for alcohol use and marijuana use. Mixed findings were found in tobacco use and other drug use; however, evidence suggests that MI is better than no treatment (Lundhal & Burke 2009; Lundhal et al., 2013). Meta analyses examining MI's effectiveness in increasing healthy behaviors suggest that MI is effective (Lundhal & Burke 2009; Burke, Arkowitz, & Menchola, 2003; Hettema, Steele, & Miller, 2005; Vasilaki, Hosier, & Cox, 2006; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). Additional empirical studies in areas such as gambling, eating disorders, and increasing exercise and healthy eating are needed to make more confident conclusions about the efficacy of MI.

Mechanisms of Action

While evidence for the efficacy of MI in a number of areas is strong, understanding of mechanism of action is less clear. Although MI is not theoretically based, there are a number of prescribed and proscribed behaviors that characterize MI. MI-consistent therapist behaviors include eliciting reasons for change (as opposed to persuading), supporting autonomy, using open-ended questions, using reflective listening, and making affirmations (Miller & Rollnick, 2012; Catley et al., 2012). A number of studies have examined whether MI-consistent therapist behavior is predictive of outcome. For example, Catley et al. (2006) found that counselor adherence to MI principles as measured through global adherence ratings and MI-consistent behavior frequencies were associated with better within-session client functioning and counselor-client interaction. Additional correlational and experimental studies support the link between therapist MI adherence and positive client behavior (Miller & Rollnick, 2012; Gaume, Bertholet, Faouzi, Gmel, & Daeppen, 2010; Miller, Benefield, &

Tonigan, 1993; Moyers & Martin, 2006; Moyers, et al., 2007; Glynn & Moyers, 2010; Patterson & Forgatch, 1985; Vader et al., 2010).

Researchers have also examined whether adherence to these MI-consistent behaviors is related to outcomes. Early studies (e.g. Miller & Mount, 2001) found that client response to treatment required not only an increase in MI-consistent counselor responses, but also a decrease in MI-inconsistent responses. Miller and Rollnick (2012) suggested that an active ingredient of MI could be a decrease in unhelpful counselor responses. In a review of the literature, Apodaca and Longabaugh (2009) found that MI led to a decreased use of MI-inconsistent behaviors compared to other modalities and that MI-inconsistent behaviors were related to poorer outcomes.

While there is good evidence that adhering to the methods of MI (and avoiding MI inconsistent methods) is associated with good outcomes both within the session and after treatment has ended, less is known about *why* MI methods are effective. Proposed mechanisms in the literature include the effect of the therapist's relational style on reducing resistance to change (Norcross, 2002), the effect of the therapist's directive efforts to reduce client ambivalence and increased motivation (Lundhal & Burke 2009), and the encouragement of client speech that favors change (i.e. change talk; Amrhein, et al., 2003; Miller & Rollnick, 2002). Miller and Rose (2009) have suggested a comprehensive model of how MI works that incorporates relational factors with "technical factors," and that MI training would lead to an increase in both. The model proposes that both relational factors and MI consistent methods lead to increase in in-session client behaviors as well as behavioral outcomes.

The importance of the relational style in MI is based on the work of Carl Rogers (1959) who emphasized the promotion of a strong, collaborative relationship to reduce resistance to change (Miller & Rollnick, 2002). Miller and Rollnick describe the MI approach as “empathetic, compassionate, respectful, and supportive of human strengths and autonomy” (Miller & Rollnick, 2012). Miller and Rollnick (2012) also suggest that MI benefits from a contrast effect. MI was developed in the addiction field, where confrontational treatment practices were acceptable (Miller & Rollnick, 2012; White & Miller, 2007). The effect of relational factors in MI has been found to double favorable outcomes when compared to regular treatment (Miller & Rollnick, 2012; Aubrey, 1998; Bien, Miller, & Boroughs, 1993; Brown & Miller, 1993). As a result, because the quality of the therapeutic relationship is a central concern for MI, it may have more favorable results when compared to treatments in settings and populations where there is a more strong contrast.

In addition to building a supportive relationship, MI incorporates a directive component where the therapist works towards specific goals of reducing client ambivalence to increase motivation to change (Lundhal & Burke, 2009). It does this by creating dissonance between the client’s current unhealthy behaviors and their own healthy goals. A goal of this component is to increase client speech that favors change referred to as “change talk”.

Change Talk

The Miller and Rose (2009) model provides a strong emphasis on change talk as a hypothesized key mediator of MI therapist effects that is reflected in the most recent edition of the Miller & Rollnick’s (Miller & Rollnick, 2012) primary text describing MI. Earlier descriptions of MI by Miller & Rollnick (Miller & Rollnick, 2002) suggested that the reason

for the importance of eliciting change talk in MI might be due to self-perception theory (Bem, 1972) which suggests that individuals infer that they do or do not want to change based on what they verbalize. In the MI scheme, any client statement in favor of change is called change talk (CT), and any client statement against change is called sustain talk (ST).

Change talk includes recognizing disadvantages of the status-quo, stating the advantages of changing, expressing optimism to change and subsequently expressing intention to change (Miller & Rollnick, 2002; Catley et al., 2006). A primary purpose of MI is to increase CT and reduce ST. Reviews have found that MI is associated with increased change talk, and change talk is predictive of better outcomes (Apodaca & Longabaugh, 2009).

A seminal study by Amrhein et al. (2003) analyzed client language in a randomized-controlled trial on the effects of MI on drug use. Video tapes of MI sessions were coded for frequency and strength of client utterances for 84 participants. The authors developed several categories of CT including Commitment, Desire, Ability, Need, Readiness, and Reasons. Furthermore, they found that outcomes were associated with the type and strength of the CT utterance. Specifically they found that preparatory language (Desire, Ability, Reasons, and Need) predicted statements of commitment; and statements of commitment predicted later drug use (Amrhein et al., 2003). Another key finding was that time of occurrence of CT (i.e. at the end of session) was predictive of outcome above and beyond level of drug use at baseline. Furthermore, the authors found that frequency of client utterances were not predictive of behavioral outcome.

CT as Predictor of Outcome

Subsequent research has consistently provided evidence indicating that CT is correlated with behavioral outcomes; however, the evidence for the specific model proposed by Amrhein et al. (2003) in which strength of commitment language was the key mediating type of change talk has been sparse. Appendix 1 lists the findings from these studies, illustrating this. As can be seen only two studies have found support for this relationship. Hodgins, Ching, and McEwen, (2009) found that the frequency of commitment language weighted by its strength predicted gambling outcomes in a randomized controlled trial (RCT) using MI; however the authors failed to replicate the finding that commitment language at the end of the session predicted outcome. Aharonovich, et al. (2008) found that mean commitment strength predicted drug-free urine samples, and a positive change in commitment from beginning to end of session predicted treatment retention.

Other studies of MI for a brief alcohol intervention (Gaume, Gmel, and Daepfen, 2008), marijuana treatment, (Walker, 2011) and adolescent substance use (Baer et al, 2008) depicted in Table 1 found no support for the link between the strength or frequency of commitment language and outcome. Gaume et al. found that the average strength of “*ability*” to change category of change talk rather than commitment predicted outcomes in a brief drinking intervention. Baer et al. (2008) found that the frequency of the “*reasons*” category of CT predicted substance use. They also found that statements about lack of *ability* and *desire* not to change (called sustain talk; ST) strongly and negatively predicted change in substance use at one and three month follow-up. Walker (2011) coded client behavior in marijuana dependent adults and similar to Baer et al. (2008) found that strength of *desire* and

reason statements were significantly predictive of marijuana outcome above baseline levels of use or self-reported motivation.

Because of the number of change talk and sustain talk variables to consider, Martin et al. (2011) factor analyzed the components of CT and ST (negative forms of the same CT categories) and found that a CT factor incorporating *desire, reasons, need*, and an “*other*” category as well as a factor including *ability* statements (both CT and ST) was predictive of long term drinking outcomes. Another factor consisting of the frequency of *taking steps* (concrete specific steps linked to moving toward or away from target behavior; both and CT and ST), ST *need* statements, as well as a CT “*other*” category, were predictive of short-term drinking outcomes. An important distinction between these authors’ findings and the proposed model by Amrhein et al. (2003) is that while, the model suggests that preparatory language is not related to outcome, Martin et al. found that both preparatory and current steps to change behavior (*taking steps*) predicted drinking outcomes.

These findings in which a variety of forms of change talk were predictive of outcomes are also consistent with an earlier study by Moyers et al. (2007) who used a different change talk coding scheme that focused on change talk more globally and found that total CT and ST frequency predicted drinking behavior outcomes. Moyers et al. (2009) also found evidence to support the causal chain between therapist behaviors, subsequent global change talk and drinking outcomes. Using the MISC 2.1, Vader et al. (2010) found evidence to support the effect of counselor speech on global change talk, global change talk on client drinking outcome, but no support for mediation of client speech between counselor speech and drinking outcome. Overall, the literature suggests that the frequency more than

the strength of total CT (and ST) as well as its various components predict a variety of addiction related outcomes.

A limitation of the change talk literature to date is that it has been examined mostly in addictive behavior change, and the proposed CT mechanisms could work differently in other behavior change domains. In a recent meta-analysis of the efficacy of MI, Lundhal et al. (2013) found that the effects of MI varied by targeted outcomes, with significant effects being found for blood pressure, cholesterol, and HIV viral load. Mixed results were found in areas such as risk reduction behaviors, healthy eating, safe sex practices, physical functioning, and quality of life. It is possible that these differences in the efficacy of MI are related to differences in how change talk works in different contexts. For example, health behavior change generally does not involve many of the complexities of behavior change in addiction such as withdrawal, perceived loss of control, stigma, and social consequences which may alter the way behavior change occurs in response to treatment. MI for addictive behavior requires overcoming both psychological and physiological resistance, making the process more challenging (Reniscow et al., 2002). CT may be easier to elicit in health behavior change than addiction contexts, but the relationship with outcomes could be weaker if change talk is less meaningful. Alternatively, if health behavior change clients are generally less ambivalent or faced with fewer barriers to change than those struggling with addiction, their momentary expressions of interest in behavior change may be more easily translated into subsequent behavior change.

To our knowledge only two other studies have looked at mechanisms of MI outside of illicit substance use in the health behavior change literature. Pirlott, Kisbu-Sakarya, DeFrancesco, Elliot, and MacKinnon (2012) analyzed counselor and client interactions to

promote firefighters' healthy diet and regular exercise that increased dietary intake of fruits and vegetables. The authors tested their hypothesized model of client change talk as a mediator of the relationship between counselor behavior and client outcomes and found that MI-consistent behaviors were significantly correlated with CT and that CT was significantly correlated with fruit and vegetable intake.

Kaplan, Keeley, Engel, Emsermann, & Brody (2013) analyzed counselor and client interactions to promote adherence to antidepressant medication. Patients were newly diagnosed with depression and prescribed an antidepressant medication. The authors hypothesized that individuals verbalizing CT regarding adherence during a baseline session would have greater adherence to medication over 180 days and that greater MI-consistent counselor behaviors would be associated with increased CT, increased odds of filling a prescription and higher adherence (Kaplan et al., 2013). Multivariate analyses found that MI-consistent counselor behaviors, and total change talk were associated with anti-depressant medication adherence. Whether these findings extend to other types of health behaviors is not known. One important area of health behavior that warrants exploration is anti-retroviral (ART) medication adherence among HIV+ individuals.

ART Adherence and MI

Importance of ART Adherence

The use of antiretroviral therapy has resulted in durable viral load suppression and reduced morbidity and mortality (Goggin et al., 2013; Crum et al., 2006; Jones et al., 2007). With the development of HAART, HIV+ patients have the opportunity to control their disease; however the benefits of HAART are dependent on strict adherence (i.e. 95% adherence of doses taken correctly; Ortego et al., 2011; Sethi, 2004). Despite the benefits of

HART, research estimates adherence rates to range between 50-70% during the first 6 months of a regimen (Simoni, Pearson, Pantalone, Marks, & Crepaz, 2006; Hill & Kavookjian, 2012).

Non-adherence to HAART can facilitate the development of drug-resistant forms of the virus (Clavel & Hance, 2004; Deeks, 2003), which could lead to transmission of these drug-resistant HIV strains to others (Wood et al., 2003). As a result, behavioral interventions to improve adherence that have combined MI and cognitive behavioral (CBT) techniques have been developed (Hill and Kavookjian, 2012; Pradier et al., 2003; Parsons et al., 2007; DiIorio et al., 2008; Samet et al., 2005; and Golin et al., 2006).

MI and Adherence Outcomes

Previous studies of MI for HAART adherence have found increased adherence rates, decrease viral load, and increase in CD4 cell counts as result of MI intervention (Hill and Kavookjian, 2012; DiIorio et al., 2008; Parsons, et al., 2007; Parsons, Rosof, Punzalan, Di Maria, 2005). In a review of the literature, analyzing the effect of MI through RCT's and rigorous non-RCTs, Hill and Kavookjian (2012) found that three of five studies reported significant adherence changes. Pradier et al, (2003) found that individuals in the intervention group (three MI sessions) were more adherent, measured through self-report. Also using self-report, Parsons et al. (2007) found that those receiving MI (eight sessions) reported a significantly larger increase in percent dose and percent day adherence than control. DiIorio et al. (2008) measured adherence with Medication Event Monitoring System (MEMS) caps, and found that those receiving MI (five sessions) took significantly greater percentage of doses on time compared to those in the control group. On the other hand, Samet et al. (2005) and Golin et al. (2006) found no differences in adherence using self-report and a composite

adherence score using multi-methods (pill counts, self-report, and eDEMS cap), respectively. These studies, however, cited methodological concerns that could have impacted adherence differences.

A more recent study compared MI with and without modified directly observed therapy (mDOT; where patients are observed or confirm on a daily basis that they have taken at least one dose a day) to standard care (Goggin et al., 2013). Using electronic drug monitor (EDM) to continuously measure adherence throughout a 48-week period, the authors found no significant differences between groups. However, a significant interaction effect indicating that adherence patterns over time differed by groups was found. The authors also found a dose response relationship where participants who received more doses of the interventions had better adherence. This suggests that although the adherence for the MI-CBT and MI-CBT/mDOT decreased over time and no main effect for intervention was found, those receiving more intervention have better adherence. Overall, these findings suggest that MI may be an effective therapy for increasing ART adherence, though the mechanisms of action have not been explored.

Summary and Purpose of Present Study

The context for investigating the role of CT in MI treatment in this study is MI treatment for adherence among HIV-positive patients. Although support for CT as a mechanism by which MI has its effects has been found, it has been limited to the addiction and gambling domains. The purpose of this study was therefore to examine, among patients receiving ART, whether change talk is related to adherence outcomes.

Given the findings in the addictions literature that support the CT mechanism of action for MI, we hypothesized that:

1. The frequency of Total CT would predict adherence outcomes with CT having a positive association with adherence. The frequency of Total ST would predict adherence outcomes ST having a negative association with adherence.

2. As an exploratory aim we examined the total average strength of CT/ST as a predictor of adherence. If found to be associated with adherence, its independent contribution to the prediction of adherence over and above the presumed association of the frequency of CT/ST and adherence was also examined. No hypotheses were made for this exploratory aim.

3. Because it is still unclear which CT and ST components are most predictive of outcomes the study also explored which individual components or combinations of CT and ST frequency components had the strongest association with adherence. No hypotheses were made for this exploratory aim.

4. Finally, because previous studies in addiction outcomes have also examined strength of each component as a predictor, the independent contribution of the strength of the individual component language was also examined. No hypotheses were made for this aim exploratory aim.

CHAPTER 3

METHOD

Overview of Project MOTIV8

The MI sessions analyzed for this study were from Project MOTIV8, one of the first randomized interventions to examine the use of MI alone and in combination with another treatment to increase the adherence to ART. Individuals enrolled in the study ($n = 204$) were randomized to one of the following groups: 1) a standard care (SC) group receiving usual medical care ($n = 65, 32\%$); 2) an Enhanced Counseling (MI-CBT) group receiving MI counseling for adherence ($n = 70, 34\%$); and 3) an Enhanced Counseling/Observed Therapy (MI-CBT/mDOT) group receiving adherence counseling for MI and OT where individuals' medication doses were supervised ($n = 69, 34\%$).

Participants

Recruitment occurred in five clinics (two academic hospitals, a VA hospital, a large private practice, and a free health clinic) in a large Midwestern City. Recruitment occurred between June 2004 and August 2009. Eligibility criteria included being HIV positive, 18 years of age or older, English-speaking, and either starting a new ART regimen or being referred for physician suspected problems in adherence, as evidenced by clinical viral load (HIV RNA > 1000 copies/ml). Participants were excluded if they had acute illness that could interfere with participation, did not live in the study radius, and did not self-administer their medication. Institutional Review Boards at each clinic and the University of Missouri – Kansas City approved the study.

Procedure

Eligible and interested participants completed informed consent procedures and scheduled for enrollment. Baseline measures were provided via an Auditory Computer Assisted Self Interview (ACASI; QDS, 2006). The ACASI assessment presents questions and response options both on-screen and as an audio recording. Baseline assessment occurred prior to randomization and was administered by different project staff from those providing interventions.

After completing baseline assessments, participants were randomized into one of the three conditions. Those enrolled in the MI-CBT and MI-CBT/mDOT groups were scheduled for counseling sessions occurring at baseline, week 1, 2, 6, 11, and 23. Individual sessions were supplemented with four 15-minute phone contacts (weeks 4, 9, 15, and 19). On average, sessions lasted for 25 minutes. Baseline sessions provided a brief rationale for the importance of adherence and the remaining sessions used one of a selection of 11 skill-building modules (e.g., enhancing motivation and confidence, self-monitoring, goal setting, and problem solving). Week 1 always employed the MI module to foster motivation for adherence. Subsequent sessions either repeated the MI module or selected a cognitive-behavioral based skill-building module (e.g., self-monitoring, cues and reminders, side-effect management).

Counselors

Master's level professionals received training in MI, behavioral skills building through cognitive-behavioral techniques, and HIV and medication adherence. MI training was provided by a licensed clinical psychologist with expertise in MI through a day-long workshop and supervised role-plays. Counselors were required to demonstrate competency in MI skills in addition to other study protocol elements prior to counseling participants.

Counselors received supervision throughout the study and all sessions were audio recorded. During supervision fidelity to MI principles was assessed to verify and ensure that counseling met acceptable performance standards using a 26-item coding scheme adapted from prior work (Harris et al., 2010).

Selection of MI Sessions

In the current study the first session (i.e., the MI module, focusing on fostering motivation) of a sub-sample (the first 95 participants) who were randomized to receive MI (i.e., in the MI-CBT and MI-CBT-mDOT groups) was used. The first session was selected, as this session would more accurately demonstrate the mechanisms of MI. These sessions were previously selected for process research analysis and transcribed. There were 48 from MI-CBT and 47 from the MI-CBT-mDOT group. All transcriptions were independently transcribed and edited for accuracy by an experienced research assistant.

Measures

Demographic and HIV Clinical Characteristics

Demographic and sample characteristics measured included age, gender, race, sexual orientation, education, income, and relationship status. Clinical characteristics included viral load copies (>100,000), CD4 cell count (<200), whether or not they had a protease inhibitor (PI)-based regimen, and whether or not they were starting ART for the first time.

Adherence

ART adherence was measured using electronic drug monitoring (EDM), specifically medication bottle caps (Medication Event Monitoring System; www.aardex.ch) that recorded date and time of each opening. Participants were asked to keep one of their ART medications in the MEMS cap bottle and those that had more than one medication were asked to select

the medication with the most complex schedule or most side effects. Adherence data was cleaned and evaluated to determine whether dose was administered on time (determined by occurring within +/- 2 hours of the scheduled dosing for daily and twice a day dosing schedules). Adherence was calculated as the following: 1) the percentage of prescribed ART doses taken (number of doses taken divided by number prescribed) and 2) percentage of doses taken on time. They were scheduled for monthly EDM downloads and follow-up assessments at 2, 12, 24, 36, and 48 weeks. A summary of adherence was calculated for the 30 day period before each assessment visit. For the purposes of this study we examined percent of prescribed ART doses taken at Week 2 and Week 12 as the outcome. Only these outcomes were selected to reduce the number of dependent variables used in analyses. Week 2 and Week 12 were selected because they are most proximal outcomes assessments to the MI session in which change talk was coded.

Change Talk Coding

Three independent coders, trained research assistants, blinded to patient characteristics, coded a total of 95 MI session tapes using the CT (and ST) coding method outlined in the Motivational Interviewing Skill Code (MISC v. 2.1; Miller, Moyers, Ernst, & Amrhein, 2008; see Appendix B). The transcriptions were separated into speech emitted by the therapist and speech emitted by the client. Separating language by counselor and client allowed for the coding of the client language only. The target statements that were coded were any made by the client in the direction of making a change toward adhering to ART (i.e., CT) or away from making a change toward adhering to ART (i.e., ST). Language in which there is no inclination of movement, termed Neutral, or in which clients simply followed along with therapist, were not coded. Responses such as “yeah” or “uh-huh” in

which the client was responding affirmatively to the therapist in reference to change talk were coded as change talk in accordance with the MISC coding scheme. A sum of all CT and ST utterances will be taken for the whole session as well as sums for each of the individual change talk categories.

Change talk utterances are grouped into four broad categories: “reasons”, “other”, “commitment”, and “taking steps”. The “reasons” category has four sub-codes (“desire”, “ability”, “reason”, and “need”) yielding a total of seven different categories:

Desire

Desire statements must include some form of one or more of the following words: “want”, “desire”, “like”, or a close synonym. Examples of desire statements include “I want to take my medication,” and “I hate taking my medication.”

Ability

Ability statements refer to an individual’s indication of difficulty to change a behavior and include words such as “can”, “possible”, “willpower”, or “ability.” Examples of ability statements include “I am able to take them,” and “I don’t think I have it in me.”

Reason

The reason category refers to an individual’s expressions of worry and concern about the behavior and refers to a rationale, basis, or motive for making a change. Examples include “It would be good for me if I took my medication,” and “I’m a mother and I ought to take better care of myself.”

Need

Need statements include a form of the words “need” or “must”; examples include “I need to take my medications.”

Other

The “other” category includes statements that do not fit into the reason category. It includes hypothetical language and general attitude about the target behavior. Examples include “If my life wasn’t so hectic, I’d take them,” and “I tell my partner, “You better take your meds.”

Commitment

Commitment language refers to an individual’s intention, agreement, or obligation to change or not change their behavior. Examples include “I am going to take them,” and “I’m not taking them.”

Taking Steps

Finally, the “taking steps” category refers to actions that the individual has already taken in the very recent past that is tied to the target behavior. Examples include, “I took them with me to work,” and “I missed my dose yesterday.” The actions taken are from the recent past and are reflections of the individual’s intention to lead to (or away from) the behavior.

Strength of language

Each statement was coded for valence depending on whether the statement reflected movement toward (+) or away from change (-). In addition to categorizing utterances into their respective codes, the level of strength of the language was also assessed. Each utterance was assigned a strength value ranging from -3 to +3 to reflect ST and CT, respectively. Participant strength scores for each category and for total CT and ST were averaged across the entire session.

Training of Coders

Three coders were trained in the use of the MISC 2.1 by reviewing the manual and receiving 5 hours of MISC instruction. Additional training consisted of individual coding practice to determine that coders had met criteria for coding of sessions. Coders also participated in 1-2 hours of weekly group-coding practice throughout the project to minimize coder drift. On-going supervision of coding practices and resolution of coding discrepancies was provided by a psychologist expert in MI and trained in MI coding practices.

Reliability of Coding

The reliability and validity of the MISC 2.1 is supported by its successful use in a number of recent change talk studies (Kaplan et al., 2013; Pirlott et al., Hodgins, Ching, & McEwen, 2009). To assess inter-rater reliability of coding within this study, all three coders coded a subset of thirty-two of the ninety-five sessions. By having each session coded by three individuals, we were able to calculate reliability across all raters. Following the recommendations of Hagen-Glynn and Moyers (2008), reliability checks occurred after every 5 sessions in order to prevent coder drift.

The intraclass correlation coefficient (ICC) statistic was used to determine reliability because it is a conservative measure of reliability and because it can accommodate three or more coders whereas weighted kappa can only accommodate two coders (Norman & Streiner, 2008). ICC's incorporate the magnitude of the disagreement, so that larger-magnitude disagreements result in lower ICCs than smaller magnitude disagreements (Hallgren, 2012). According to Cicchetti (1994), values less than .4 are considered poor; between .4 and .59 are fair; between .6 and .74 are good; and between .75 and 1.0 are excellent. IBM SPSS Statistics 20 was used to calculate ICCs.

For the subsample of the thirty-two coded sessions, reliability measures for the Total CT, ST, and Strength ratings, and their individual components are given in Table 1. As can be seen, ICCs indicated reliability in the excellent range for the CT and ST total and individual component variables. The Need ST variable was not calculated due to no instances of this variable coded by the coders. ICCs for the Strength variables were all above .5, falling mostly in the fair to excellent range.

Table 1
Single-item reliability measures for session coding

Variable	CT	ST	Strength
Total	.950	.947	.895
Desire	.755	.866	.582
Ability	.901	.936	.579
Reasons	.894	.920	.896
Need	.904	NC	.609
Commitment	.868	.886	.561
Taking Steps	.977	.913	.770
Other	.767	.775	.497

CT = change talk; ST = sustain talk; NC = not calculable

CHAPTER 4

ANALYSES

Statistical Analysis

The sample size was determined based on recommendations by Cohen, Cohen, West, and Aiken (2003) indicating that sample sizes of 75 or greater are required for a medium effect size (.20) in multiple regression used for this study. Further, in a review of literature, effect sizes ranged between .24 and .31, and Apodaca and Longbaugh (2009) reported a mean effect size of .29. The maximum number of predictors to be used in models is approximately 10 after identifying prominent predictors from bivariate analyses. Sample size was adjusted upward to 95 participants to allow for some missing data. All analyses were performed using SPSS for Mac, version 20 statistical software. Prior to analysis, data were cleaned and the assumptions of normality were tested to ensure that they were met (Warner, 2008). Outlier scores were replaced with values of two times the standard deviation plus the mean as described by Field (2009). Violations for assumptions of normality were identified using the Kolmogorov-Smirnov statistic for all variables in order to guide statistical test selection.

Preliminary Analyses

Descriptive and frequency analyses were used to summarize the demographic variables of age, gender, race, and education as well as the ART adherence and CT variables. Preliminary analyses were conducted to address the need for covariates in the main analyses if there are significant differences on CT and adherence variables by the participants' demographic characteristics. These analyses were done through parametric and non-parametric techniques including: Pearson's Product Moment correlation, t-tests for

independent samples, one-way ANOVA for variables with normal distribution, Spearman's rho, the Mann-Whitney U test, and the Kruskal-Wallis test for non-normally distributed variables. Analyses were conducted to determine whether there were demographic and ART adherence differences between our sample and those not used in coding (i.e., the rest of the full study sample), as well as between participants with complete ART adherence data and those with missing data. Additionally, differences between treatment groups were conducted to determine if treatment group would be considered as a covariate. Correlation coefficients were calculated between all CT and ST variables and ART adherence (at week 2 and week 12) using Spearman's rho for non-parametric statistics.

Main Analyses

Total CT and ST (Aim 1)

Multiple regression analyses with strapped standard errors (5000 samples) were conducted to examine the relationship between total CT and total ST and ART adherence (% Taken) at week 2 and week 12. Separate models were conducted for each of the adherence outcomes (week 2 and week 12) and all models included identified covariates.

Exploratory Analyses

Average Total Strength (Aim 2)

Total Strength was added to the models in the primary analyses (at 2- and 12-weeks) to determine whether strength of change talk was associated with ART adherence above and beyond the frequency of Total CT and Total ST. Multiple linear regression models were run with bootstrapped standard errors (5000 samples) to take into account issues concerning heterogeneity and lack of normality. All models included previously identified covariates. Multicollinearity was assessed using Variance Inflation Factors (VIF) to measure how much

of the variance of the estimated coefficients was increased over the case of no correlation among the independent variables. If no two independent variables were correlated, all VIFs would be 1. Following recommendations of Cohen, Cohen, West, and Aiken (2003), and Stevens (2002), VIF values between 5 and 10 were examined and corrections for multicollinearity were made by re-running the model excluding the variable with the higher VIF value and reporting both models, given the lack of literature available to guide corrections.

CT and ST Frequency Subcategories (Aim 3)

In order to assess whether the sub-categories of change talk were related to adherence, the Spearman's rho correlations of the relationship between the 7 CT and 7 ST variables and adherence were examined. Although there were no hypotheses to identify which components were related to adherence, anticipated relationships were that CT components will have a positive association with adherence while ST components will have a negative relationship with adherence. As in Aim 2, issues concerning heterogeneity, lack of normality, and multicollinearity were addressed through bootstrapped standard errors and examination of VIFs.

Average Strength Sub-categories (Aim 4)

Significant bivariate associations between average strength variables and ART adherence were identified. Preliminary analyses and assessment for multicollinearity was performed as in previous models. Significant sub-category average strength variables were included in a multiple linear regression model to determine which individual strength components might contribute independently to the prediction of adherence.

CHAPTER 5

RESULTS

Data Cleaning and Testing of Assumptions

One of the ST component variables, Need ST, was excluded from analyses due to no instances being coded. Outliers (with number in parentheses if more than one instance) were found for Total CT, Total ST (2), Total Strength, Ability CT, Ability ST, Commitment CT, Commitment ST (3), Desire CT (2), Desire ST, Need CT, Other ST, Taking Steps CT, Taking Steps ST (2), Taking Steps Strength, and the Week 2 and Week 12 ART adherence outcome variables. One participant was found to have extreme values on all measures and was deleted from the dataset. In addition, one MI session tape was not audible and another contained Spanish-language and was not coded by all coders. Thus with three omissions, the final sample size for analysis was 92 rather than 95.

Data for Total CT, Total ST, their individual components, and ART adherence variables violated the assumptions of normality as indicated by significant Kolmogorov-Smirnov values ($p < .001$). With the exception of the Total Strength, and Reasons and Other Strength variables, all strength variables also violated the assumptions of normality. The distributions for the CT and ST variables were positively skewed (range: .952 – 5.351) and kurtotic (range: .0519 – 27.222). With the exception of Need and Desire Strength, which were positively skewed (range: .401-.541) and kurtotic (range: -1.411 - .035), strength variables were negatively skewed (range: -1.292 - -0.424), and kurtotic (range: -0.64 – 1.656). The distributions of the ART adherence variables were negatively skewed (range: -1.909 - -1.584) and kurtotic (2.082 – 2.832). Given that these variables were count and rate

data, the skewed distributions were expected. For the ART adherence variables, the highly negative skewed distributions reflected high adherence rates by the study sample.

Participant Characteristics

Demographic characteristics of the 92 participants included in this secondary analysis are shown in Table 2. Participants ranged in age from 21 to 59 years old with a mean age of 40.72 (SD = 9.03). Seventy-one (77.2%) participants identified themselves as male at birth. The majority of the sample (55.4%) identified as Black/African-American, and another thirty identified as white (32.6%). Education level varied; 50% of individuals had a high school degree/GED or less, and 50% had greater than a high school degree or GED.

Means and standard deviations for the ART adherence variables at Week 2 and Week 12, and the Total CT, ST, and Strength variables are shown in Table 2; the individual CT components are shown in Table 3. Average percent of ART doses taken at Week 2 was 88.03 (SD = 17.28). Adherence levels decreased at the long-term Week 12 follow-up to 85.45 (SD = 21.29). With regards to Total CT, ST, and Strength variables, participants engaged in mostly CT (M = 54.40, SD = 23.76) compared to ST (M = 19.00, SD = 12.00). Mean strength ratings indicated participants were more positive with their language about adherence (M = 0.94, SD = 0.46).

As can be seen in Table 3, the most commonly used form of CT was Reason CT (M = 26.02, SD = 12.90), and the least used was Desire CT (M = 0.45, SD = 0.75). The most commonly used form of ST was also Reason ST (M = 13.85, SD = 9.59), and the least used was Commitment ST (M = 0.02, SD = 0.10). The component with the most positive average strength rating was Commitment (M = 1.65, SD = 0.66), and the component with the least

positive average strength rating was Desire (M = 0.50, SD = 1.00). There were no components with average strength rating in the negative range.

Table 2
Participant Demographic, ART Adherence, and Change Talk Characteristics

Characteristic	All Participants	
	M (SD)	No. (%)
Age, years	40.72 (9.03)	
Male Gender at Birth		71 (77.2)
Female Gender at Birth		21 (22.8)
<u>Race/Ethnicity</u>		
African American		51 (55.4)
White		30 (32.6)
Other		11 (12.0)
<u>Education</u>		
High School Grad/GED or Less		46 (50.0)
More than High School Degree		46 (50.0)
<u>Clinical Characteristics</u>		
CD4 cell count – Baseline	253.63 (193.88)	
Viral Load (copies per mL) - Baseline	115128.27 (152834.27)	
<u>Stage of Change for adherence</u>		
Pre-contemplation		37 (53.6)
Action		20 (29.0)
Maintenance		12 (17.4)
-table continued-		

	All Participants	
	M (SD)	No. (%)
Motivation to adhere (1-10)	9.07 (1.87)	
Self-efficacy to adhere (1-10)	8.31 (1.52)	
<u>ART Adherence</u>		
Week 2 - % Doses Taken	88.03 (17.29)	
Week 12 - % Doses Taken	85.46 (21.29)	
<u>CT, ST, and Strength</u>		
Total CT (range = 18.33 – 134.67)	54.40 (23.76)	
Total ST (range = 0 – 54.28)	19.00 (12.00)	
Total Strength (range = -0.27 – 1.83)	0.94 (0.46)	

Table 3
Category of Change Talk

	CT	ST	Strength
	M (SD)	M (SD)	M(SD)
Desire	0.45 (0.75)	0.07 (0.26)	0.50 (0.96)
Ability	1.71 (2.18)	0.24 (0.63)	0.96 (1.13)
Reason	26.02 (12.90)	13.85 (9.59)	0.64 (0.65)
Need	0.90 (1.19)	0 (0)	1.01 (1.06)
Commitment	2.76 (1.98)	0.07 (0.26)	1.65 (0.66)
Other	15.21 (9.00)	3.45 (3.23)	1.16 (0.54)
Taking Steps	7.22 (5.35)	1.44 (1.93)	1.21 (0.80)

Preliminary Analysis

Preliminary parametric and non-parametric analyses were conducted to determine whether there were any differences in CT, ST, Strength, their component variables, and ART adherence variables based on participant demographics. There were no significant differences in the CT, ST, Strength, their individual component variables, and ART adherence outcome variables by gender or race.

For education level (see Table 4), there were significant differences found in Week 12 ART adherence. Those with a high school degree or less ($Md = 91.52$, $n = 41$) had significantly lower adherence than those with greater than a high school degree ($Md = 97.37$, $n = 40$, $U = 502$, $z = -3.02$, $p = .003$, $r = .31$). As a result, education level was used as a covariate in all analyses predicting Week 12.

For age (see Table 5) there was a significant negative correlation between Ability CT and age, resulting in age being considered as a covariate for any future analyses involving Ability CT.

For treatment group there were no significant differences on any of the ART adherence, CT, ST, Strength, and their individual component variables. As a result, treatment group was not considered to be a confounding variable and was not used in subsequent analyses.

In order to determine whether there were any differences in demographic, ART adherence, CT, ST, Strength, and their individual component variables between those with complete adherence data and incomplete, independent-samples t-tests, chi-square tests, and Mann-Whitney U tests were performed. There were eleven individuals with missing adherence data at the Week 12 follow-up assessment. There were no demographic

differences between individuals that had complete versus incomplete data at the Week 12 follow-up assessment. Table 6 displays results for predictor and outcome variables. Mann-Whitney U tests revealed that those with incomplete Week 12 ART adherence data (Md = 78.57, n = 11) had lower Week 2 adherence data than those with complete adherence data (Md = 100.00, n = 80, U = 251, z = -2.14, p = .032, r = .224). Finally, there were no significant differences in demographic and adherence outcome variables by those that were used in coding versus those that were not.

Table 4
Education Comparisons

	Change Talk			Sustain Talk			Strength		
	<i>t</i>	<i>r</i>	<i>p</i>	<i>t</i>	<i>r</i>	<i>p</i>	<i>t</i>	<i>r</i>	<i>p</i>
Total		.035	.737		.023	.824	.137		.891
Desire		.044	.670		.122	.241		.049	.641
Ability		.035	.741		.144	.168		.050	.630
Reasons		.171	.101		.064	.537	.869		.387
Need		.039	.711		NC	NC		.078	.456
Commitment		.158	.130		.060	.559		.114	.272
Other		.070	.502		.075	.472	-.374		.709
Taking Steps		.116	.265		.101	.334		.142	.171
Adherence									
	<i>t</i>	<i>r</i>	<i>p</i>						
Wk 2 % Taken		.124	.233						
Wk 12 % Taken		.314	.003**						
HS Degree or less = 46; > HS Degree = 46; Wk 2 N = 91; Wk 12 N = 81									

Table 5

Age Correlations

	Change Talk		Sustain Talk		Strength	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Total	-.134	.204	.051	.632	-.124	.238
Desire	-.168	.108	.005	.959	-.145	.168
Ability	-.229	.028*	.053	.619	-.152	.148
Reasons	-.053	.619	.004	.970	-.039	.712
Need	.148	.160	NC	NC	.048	.653
Commitment	-.100	.342	.120	.255	-.078	.459
Other	-.171	.102	.052	.624	-.088	.403
Taking Steps	.004	.972	.067	.525	-.046	.665
-table continued-						
Adherence						
	<i>r</i>	<i>p</i>				
Wk 2 % Taken	-.05	.619				
Wk 12 % Taken	.038	.733				
Wk 2 N = 91; Wk 12 N = 81; Pearson correlations for Total Strength, Reason Strength, Other Strength						

Table 6
Predictor and Outcome Variables by Incomplete vs Complete ART Adherence Data

	Change Talk			Sustain Talk			Strength		
	<i>t</i>	<i>r</i>	<i>p</i>	<i>t</i>	<i>r</i>	<i>p</i>	<i>t</i>	<i>r</i>	<i>p</i>
Total		.006	.952		.005	.962	-.411		.682
Desire		.022	.834		.020	.844		.019	.858
Ability		.048	.640		.025	.808		.010	.927
Reasons		.105	.315		.001	.995	-.627		.532
Need		.022	.834		NC	NC		.084	.422
Commitment		.074	.477		.067	.519		.090	.389
Other		.046	.660		.002	.986	-.378		.706
Taking Steps		.082	.434		.111	.287		.026	.800
Adherence									
	<i>t</i>	<i>r</i>	<i>p</i>						
Wk 2 % taken		.224	.032*						
Wk 12 % Taken		NC	NC						
Incomplete = 11; Complete = 81; Wk 2 N = 91; Wk 12 N = 81; t-test for Total Strength, Reasons Strength and Other Strength									

Main Analyses

Correlations between Predictor and Adherence Variables

Correlation coefficients were calculated between all CT and ST variables and ART adherence (at week 2 and week 12) using Spearman's rho for non-parametric statistics and are presented in Table 7. Significant correlations were flagged and those falling under a value of $p < .10$ were also noted as those variables were included in main and exploratory analyses. All significant relationships were in the expected direction with the exception of both Need CT and Need Strength, which had a negative relationship with adherence.

Table 7
Spearman's rho correlations

	Change Talk		Sustain Talk		Strength	
	Week 2	Week 12	Week 2	Week 12	Week 2	Week 12
	% Taken	% Taken	% Taken	% Taken	% Taken	% Taken
Total	-.034	-.056	-.286**	-.267*	.253*	.151
Desire	-.101	-.065	-.078	-.137	-.111	-.003
Ability	.061	-.021	-.122	-.207 ^a	.157	.046
Reasons	-.075	-.159	-.221*	-.210 ^a	.096	.035
Need	-.182 ^a	-.217 ^a	-.117	-.125	-.109	-.222*
Commitment	-.166	-.098	-.135	-.135	.047	-.062
Other	.163	.159	-.109	-.097	.227*	.169
Taking Steps	.010	-.070	-.379***	-.240*	.442**	.074

^ap < .10, *p < .05, **p < .01, ***p < .001,

Relationship between Total CT and ST and ART Adherence

Multiple regression analyses with bootstrapped standard errors were conducted to examine the relationship between Total CT, ST, and ART adherence (% Taken) at Weeks 2 and 12. For Week 2 (see Table 8) Total CT was not a significant predictor of ART adherence ($\beta = .066, t(88) = .814, p = .42$) while Total ST was a significant predictor ($\beta = -.324, t(88) = -2.01, p < .05$). For every additional ST statement made adherence decreased by .32%.

For Week 12 (Table 8), neither Total CT ($\beta = .063, t(77) = .615, p = .42$) nor Total ST ($\beta = -.319, t(77) = -1.55, p = .09$) were significant predictors.

Table 8
Models for Total CT, Total ST, and Week 2 and 12 Adherence

Variable	Week 2			Week 12		
	β	SE β	CI	β	SE β	CI
Constant	90.61	4.69	81.23-99.93	81.2	6.5	68.50 - 93.71
Education	-	-	-	12.50*	4.48	3.82 – 21.34
Total CT	.07	.08	-.08 - .18	.06	.08	-.09 - .23
Total ST	-.32*	.16	-.68 - -.030	-.32	.19	-.73 - .02
R^2	.044			.12		

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Exploratory Analyses

Average Total Strength (Aim 2)

As seen in Table 7 Total Strength had a significant relationship with ART adherence at Week 2 but not at Week 12. Exploratory analysis looking at the contribution of Total Strength to the model of Total CT and Total ST was conducted at both time-points. For Week 2, when running a model with Total CT, Total ST, and Total Strength, VIF values for Total ST and Total Strength were slightly greater than 5 (5.64 and 5.40 respectively). Given the exploratory nature of this aim and the inability to use literature to guide decisions for removing variables, the model was run with and without Total ST (see Table 9). When Total Strength was added to the model with both Total CT and Total ST, Total Strength was not a significant predictor of ART adherence ($\beta = 3.95$, $t(87) = .432$, $p = .58$). When Total Strength was added to the model without Total ST, Total Strength was found to be a

significant predictor ($\beta = 8.22$, $t(88) = 1.99$, $p < .05$). For every one-unit increase in Total Strength (range -3 to 3), there was an increase in adherence of 8.22%.

For Week 12, VIF values for Total ST and Total Strength were also above 5 (6.18 and 6.01 respectively). When Total Strength was added to the model with both Total CT and Total ST, Total Strength was not a significant predictor of ART adherence ($\beta = -1.46$, $t(76) = -1.12$, $p = .88$). When Total Strength was added to the model without Total ST, Total Strength was not found to be a significant predictor ($\beta = 7.00$, $t(77) = 1.34$, $p = .10$).

Table 9
Models for Total CT, Total ST, Total Strength, and Week 2 Adherence

Variable	Week 2			Week 2 ^a		
	β	SE β	CI	β	SE β	CI
Constant	87.04	8.06	72.34 – 104.18	82.83	4.28	74.41-91.59
Total CT	.02	.12	-.22 - .24	-.05	.07	-.208 - .074
Total ST	-.19	.33	-.88 - .42	-	-	-
Total Strength	3.95	7.20	-11.27 – 16.91	8.22*	3.58	1.02 – 15.27
R^2	.044			.043		

Note: ^a Model run without ST given multicollinearity; * $p < .05$, ** $p < .01$, *** $p < .001$

CT and ST Sub-category Frequency (Aim 3)

Multiple regression analyses with bootstrapped standard errors were run to examine the relationship between the individual sub-categories of CT and ST and adherence. Table 7 shows the correlations between the predictor and outcome variables for both Week 2 and

Week 12 adherence. For Week 2, only Need CT met the threshold ($p < .10$) among the CT predictors. In the regression model Need CT was not a significant predictor ($\beta = -2.40, t(89) = -1.58, p = .11$). For the ST predictors, Reasons ST and Taking Steps ST met the threshold for predictor identification. In the regression model (Table 10) Reasons ST was not a significant predictor of adherence ($\beta = -.07, t(88) = -.36, p = .73$) but Taking Steps ST was ($\beta = -3.24, t(88) = -3.60, p < .01$). For every additional Taking Steps ST statement made adherence decreased by 3.24%.

Table 10
Model for ST Sub-category Frequency and Week 2 Adherence

Week 2			
Model 1			
Variable	β	SE β	CI
Constant	93.64	2.79	88.33 – 99.32
Reasons ST	-.07	.19	-.47 - .27
Taking Steps ST	-3.24**	.95	-5.33 - -1.59
R^2		.14	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

For Week 12, only Need CT met the threshold ($p < .10$) for predictor identification among the CT predictors. In the regression model Need CT was not a significant predictor ($\beta = -2.19, t(78) = -1.18, p = .31$). For the ST predictors, Ability ST, Reasons ST, and Taking Steps ST met the threshold for predictor identification. A regression model (Table 11) including those identified predictors and education revealed that of the three ST predictors,

Ability ST ($\beta = .61, t(76) = .15, p = .87$) and Reasons ST ($\beta = -.23, t(76) = -.93, p = .38$) were not significant but Taking Steps ST was ($\beta = -2.80, t(76) = -2.23, p < .05$). For every additional Taking Steps ST statement made adherence decrease by 2.80%.

Table 11
Model for ST Sub-category Frequency and Week 12 Adherence

Variable	Week 12		
	β	SE β	CI
Constant	85.50	5.35	74.56 – 95.53
Education	13.67**	4.56	5.10 – 22.82
Ability ST	-.61	4.36	-9.71 – 8.10
Reasons ST	-.23	.26	-.76 - .26
Taking Steps ST	-2.80*	1.22	-5.34 - -.51
R^2	.17		

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

CT and ST Sub-category Average Strength (Aim 4)

Similar to the analyses completed for the individual CT and ST components, exploratory analyses were conducted to determine the relationship between individual strength variables and adherence. Spearman rho's correlations (Table 7) identified Other Strength and Taking Steps Strength as having significant bivariate relationships with

adherence at Week 2. Need Strength was the only individual strength component that was related to adherence at Week 12.

For Week 2 the regression model (Table 12) looking at Other Strength and Taking Steps Strength revealed that Other Strength was not a significant predictor of adherence ($\beta = 3.51, t(88) = 1.13, p = .27$) but Taking Steps Strength was ($\beta = 8.10, t(88) = 3.82, p < .001$). For every unit change in average Taking Steps Strength (range -3 to 3), adherence increased by 8.10%.

For Week 12, only Need Strength met the threshold ($p < .10$) for predictor identification among the Strength predictors. In the regression model Need Strength was not a significant predictor ($\beta = -2.58, t(78) = -1.16, p = .24$).

Table 12
Model for Sub-category Average Strength and Week 2 Adherence

Week 2			
Model 1			
Variable	β	SE β	CI
Constant	74.22	4.80	64.40 – 83.40
Other Strength	3.51	3.10	-2.76 – 9.31
Taking Steps Strength	8.10***	2.27	3.89 – 12.76
R^2	.17		

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER 6

DISCUSSION

Although support for CT as a mechanism by which MI has its effects has been found, it has been limited to addiction and gambling domains. The present study aimed to determine whether CT is related to ART adherence outcomes. It had four aims: 1) to examine the role of Total CT and ST on adherence; 2) to explore the role of Total Strength on adherence controlling for frequency; 3) to explore the role of the individual CT and ST components on adherence; and 4) explore the role of the individual strength components on adherence.

Total CT and ST as predictors of adherence

Analyses assessing the role of CT and ST on adherence determined that only ST significantly predicted adherence at Week 2. The relationship between ST and adherence at Week 2 was in the hypothesized direction where an increase in the number of ST statements made was related to a decrease in adherence. Controlling for the relationship between education and adherence at Week 12, neither CT nor ST had a significant relationship with adherence. The role of ST was consistent with previous research that has found that ST is a significant predictor of behavior change outcomes. Moyers et al. (2007) found ST to predict one of two longer-term study outcomes (i.e., days abstinent), whereas CT was not (Moyers et al., 2007). Both CT and ST were significant independent predictors of the other long-term outcome, average drinks per drinking day (Moyers et al., 2007). The authors explained the consistency of a relationship between ST and outcomes in their study by suggesting that ST reflects a more general construct of client resistance, which may have a longer-lasting impact on outcomes than CT.

Vader et al., (2010) also found that both CT and ST were significant predictors of drinking outcome but that ST had stronger relationship than CT. On the other hand, Pirlott et al. (2012) did not find a significant relationship between ST and fruit and vegetable intake outcomes. However, ST accounted for only 2% of total language coded in their study. Kaplan et al. (2013) also found no significant relationship between ST and adherence to antidepressant medication, whereas CT was significantly associated with adherence. In the Kaplan et al. study 34.1% of the sample made a ST statement affording a meaningful analysis of the potential role of ST. However, in the present study 99% of the sample made a ST statement and 40% made 20 statements or more suggesting that ST may have been more salient to these participants. Interestingly, in both the Kaplan study and the present study, more CT was expressed than ST suggesting that the ratio of CT to ST is not key to determining which is predictive of outcomes. It is possible then that both CT and ST should be treated separately and in certain contexts, the expression of ST might indicate difficulties in behavior change. Other differences between the studies were that in the Kaplan study trained and untrained physician's delivered MI during medical care, whereas in the present study highly skilled Master's level counselors delivered MI during counseling sessions. These factors likely impact the elicitation of CT and ST, which may in turn affect the strength of the relationship between CT and ST and outcomes.

Another potential explanation for ST being more important than CT in the present study is that it may be easier to elicit CT in health behavior change contexts than in addiction contexts. This may result in more CT but the relationship with outcome may be weaker as it might be less meaningful than when it occurs with individuals who are addicted. Therefore the relationship between CT or ST and behavior change might be affected by whether the

goal is to decrease or increase the behavior, respectively. Participant characteristics may also be important. For example, in the present study participants were highly motivated to adhere at baseline. This may have led to the participants more readily expressing CT when encouraged by counselors whereas the spontaneous expression of ST (which is not as deliberately elicited by MI counselors) may have been more indicative of perceived barriers or greater ambivalence. The relative predictive power of CT and ST across studies may therefore hinge on the context influencing the expression of CT or ST.

The predictive power of CT and ST was also affected by the length of time to the outcome. As noted neither CT nor ST were predictive of outcome at Week 12. Although it is not surprising that proximal associations were stronger than more distal associations, the magnitude of the effect of Total ST was the same at Week 12 as it was at Week 2. The lack of significance may have been due to loss of a few participants between Week 2 and Week 12. Individuals with missing Week 12 data also had lower adherence at Week 2 and those with missing ART adherence at Week 12 had made slightly more ST statements than those with complete data. ST may therefore have greater predictive power over time than is apparent from these results which is consistent with observed long-term association in prior studies (Moyers et al., 2007; Vader et al., 2010)

The effect of Total Strength on Adherence

For Aim 2, exploratory analyses assessed whether Total Strength contributed independently to the prediction of adherence over and above that of Total CT and ST. Results indicated that the relationship between Total Strength and ART adherence differed based on whether or not it included Total ST in the model. When Total ST was included in the model at Week 2, neither ST nor Strength predicted adherence due to multicollinearity. When Total

ST was removed from the model, Total Strength was identified as a significant predictor of adherence. With an additional point increase in average strength of CT language, adherence increased by 8.2%. When assessing the individual Spearman's correlations, Total Strength was found to have a stronger correlation to Total ST than Total CT. This suggests that Total Strength was more strongly influenced by ST statements than CT statements. This is the first study to examine the relationship between average Total Strength of combined CT and ST and outcomes. Given the significant relationship between this new Total Strength variable and outcome, this study suggests that Total Strength may be of greater importance than the frequency of change talk and sustain talk. Given that it also combines CT and ST into a single index, replication of this finding might suggest a more simple and efficient method of indexing CT/ST.

Relationship between CT/ST sub-categories and adherence

Aim 3 assessed the relationship between the individual sub-categories of CT and ST adherence. However, only Taking Steps ST was identified as a significant predictor of adherence. The relationship occurred at both Week 2 and Week 12 in the expected direction where every additional Taking Steps ST statement made led to a decrease in adherence of 3.2% and 2.8% for Week 2 and Week 12 respectively. Of all analyses conducted, Taking Steps ST was the only predictor that had a consistent relationship with adherence at both proximal and distal outcomes, suggesting that individuals that had adherence problems at Week 2 that they identified during their session continued to have adherence problems at Week 12. When looking at the Taking Steps ST variable, it was found that 51.5% of individuals made at least one Taking Steps ST statement. Of the 47 individuals that made a Taking Steps ST statement, 51% made 1-2 statements and 49% made 3 to 7 statements.

This is the first study of its kind to find that Taking Steps ST was significantly related to outcome. Martin, Christopher, Houck, & Moyers (2011) coded for Taking Steps ST, but they did not look at the role of Taking Steps individually, instead considering it within a factor that was then associated with drinking outcome. Vader et al. (2010) categorized CT/ST but they did not look at the individual components. Pirlott et al. (2012) also described coding the individual categories, but in addition to not reporting any findings of the relationship between individual categories and outcome, they also did not code for Taking Steps ST.

Taking Steps ST consists of statements indicating some behavioral step sustaining the status quo. According to the Transtheoretical Model (Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) individuals in the preparation stage of change are beginning to take small steps towards change (i.e. Taking Steps CT). Therefore, Taking Steps ST statements may be an indicator of individuals not being in the preparation, action or maintenance stages of change. Previous literature has found that action and maintenance stages of change predict positive outcomes. For example, in the health promotion domain of functional rehabilitation, individuals falling in the action stage of change for pain (defined as active participation in pain management skills acquisition and practice) had an increased likelihood of completing a functional rehabilitation program (Tkachuck, Marshall, Mercado, McMurtry, & Stockdale, 2012) and those in the pre-contemplation stage were more likely to drop out of treatment (Kerns & Rosenber, 1997). Heather, McCambridge, and UKATT Research Team (2013) found that those individuals at action stage of change post-treatment were two to three times more likely to show favorable drinking outcomes than those in pre-action. Although the present study did not assess the relationship between change talk or sustain talk language and stages of change, it is possible that Taking Steps ST may suggest

that those in earlier stages of change may be more likely to identify barriers to adherence, and that these statements maintaining the status quo may be predictive of decreased adherence.

In addition, the Transtheoretical Model also integrates elements of self-efficacy theory (Bandura, 1977; Bandura 1982). Prochaska and DiClemente have found that individuals in the precontemplation and contemplation stages of change have greater temptation to engage in problem behaviors due to poorer self-efficacy. As a result, it is possible that those individuals making Taking Steps ST statements have decreased levels of self-efficacy than those not making Taking Steps ST statements. Future studies should look at the relationship between Taking Steps ST and self-efficacy.

Given the dearth of literature examining the role of individual CT/ST components and specifically Taking Steps ST, the present study suggests that future studies should assess the individual categories in addition to just summary, or total scores. By assessing the role of individual categories, interventions can be modified to focus on eliciting certain aspects of CT/ST that might provide interventionists with a clearer indicator of potential behavior change. In addition, in the present study Taking Steps proved to be the most consistent predictor of outcome. This suggests that important CT/ST predictors may be overlooked when relying on aggregate scores. For example, Baer et al. (2008) found that statements of desire/ability were related to illicit substance use both at 1-mo and 3-mo follow-up. More work is needed to determine which of the individual CT/ST categories are most important, but it is possible that in the present study Taking Steps ST was important because among a sample of highly motivated participants perceived barriers to change may be key to distinguishing who will be successful when acting on their motivation to change.

Individual CT/ST Strength components and adherence

Aim 4 assessed the relationship of the individual strength components to adherence. Preliminary analysis identified Other and Taking Steps Strength variables as having significant correlations with adherence. The primary regression analyses revealed that only Taking Steps Strength was a significant predictor of adherence at Week 2 only. For every unit of increase in strength there was an increase in adherence of 8.1%, making it the predictor with the most significant relationship with adherence. This finding was consistent with Gaume, Gmel, and Daeppen (2008) who found that Taking Steps Strength was predictive of decreased drinking outcome. Hodgins et al. (2009) was the only other study examining Taking Steps Strength, however, they did not find a significant relationship between Taking Steps Strength and gambling outcomes. The present result highlights again the value of examining strength rather than frequency of CT/ST and points more strongly to the potential importance of the Taking Steps category of CT/ST.

In comparing the results to prior work it is important to note that the results were not consistent with Amrhein et al.'s (2003) seminal study identifying commitment strength shift as a predictor of drinking outcome. For that study, commitment language was coded at a much higher frequency, and was coded more often than any other change talk language. The present study found that there were an average of 2.75 commitment statements made by each participant, but it was not the most commonly coded form of change talk. In addition, the present study's methodology was different from Amrhein et al.'s in that it did not calculate a shift in change talk. This was done for multiple reasons including an attempt to simplify the coding structure as well as a consideration of the structure of the MI session.

The present study's findings were also not consistent with Hodgins et al. (2009) and Aharonovich et al. (2009), which found commitment strength to be related to gambling and drinking outcomes respectively. It is possible that outcomes varied based on how the frequency (CT and ST) and strength scores were calculated. Hodgins et al., for example, used a weighted frequency of change talk language (frequency x strength for both positive and negative language) rather than an average strength used in the present and other studies.

In addition to commitment language not being found as significantly related to outcomes, additional individual categories were not found to be significant in the present study. Among prior studies Gaume, Gmel, and Daeppen (2008) found that ability strength was related to weekly drinking. Walker et al. (2011) found desire and reasons strength were significantly predictive of marijuana use. In the Gaume, Gmel, and Daeppen study, the authors suggest their finding might be related to the intervention being delivered as a brief intervention in an emergency department, where discussion about ability to change might play a bigger role than other types of change talk. Walker et al. attribute their unique findings to the context of their intervention and their population; providing personalized feedback in addition to a standard MI session to marijuana dependent adults might result in other forms strength language being more significant. The present study demonstrates that the context and the sample might account for the differences in predictive power of individual strength scores.

Limitations

Findings should be generalized cautiously beyond populations similar to the sample included in this study. This population volunteered to receive help adhering to their ART regimen, and thus it is possible that this may not generalize to those individuals not seeking

help or willing to receive help. Similarly results may not be generalizable to individuals who are initially less motivated to adhere or who receive MI outside of skilled counseling contexts, or who have lower adherence rates. Although the sample included individuals new to ART treatment or having adherence difficulties, adherence rates for the study time points were rather high compared to other studies (DiIorio et al., 2008; Liu et al., 2001), and could have contributed to the lack of relationship between CT and outcome. The restriction of range in adherence could have made the effect of change talk and sustain talk less effective.

Although there was not an excessive amount of attrition, as noted the results may have been affected by missing data at Week 12 given that there was a greater likelihood of attrition among individuals with poorer adherence at Week 2. Results may also have been affected by relying on CT/ST assessments from only the first session of the intervention; additional work could assess the changes in CT from session to session to determine whether change in CT mediates outcomes. Finally, this study used a semi-structured manualized MI approach. The session covered the following topics: 1) a review of the participant's previous adherence data, 2) pros and cons of adherence, 3) motivation and confidence rulers for adherence, and 4) discussion of values and their relation to adherence. It is possible that the structured aspect of the session led to expressions of CT/ST that could differ from other forms of MI delivery.

Future Directions

Future studies might determine whether CT/ST mediates the effect of counselor behavior on ART adherence. Determining the particular aspects of change talk that are predictive of behavioral outcomes in ART adherence may help to improve implementation of MI. By identifying change talk components that are predictive of better adherence,

counselors could focus on increasing those forms of change talk. Furthermore, counselors could better identify individuals that are not yet ready to change from those that are ready to move to the “when and how” of changing. Future studies could also look at the role of CT/ST over and above additional self-reported measures of motivation, self-efficacy, and stage of change as well as understanding whether the timing of the language plays a role. The present study also only assessed the role of CT/ST in medication adherence; future studies should look at other clinical outcomes such as CD4 or viral load. Finally, given the identification of Taking Steps ST as a significant predictor, additional studies should further assess the context of the Taking Steps ST language to determine indication of the possible barriers to adherence and if Taking Steps ST language could provide insight into what problems people face when adhering to medication.

Conclusion

The present study was the first to look at the mechanisms of MI for adherence to ART. It suggests that it is important to code for ST language and treat it separately than CT language. Given our identification of Taking Steps ST as a significant predictor of adherence, it is important for future studies to examine not just the role of global/total scores, but individual components as well. It is the individual components that might provide insight into the mechanisms of MI in different behavioral contexts. The present study has shown that what people say they do not do (i.e. Taking Steps ST) is predictive of future behavior both with proximal and distal outcomes and the strength of which those statements are made may play an additional role separate from their frequency. As a result, future studies should consider not just the frequency of language but also its strength to determine how client language is related to outcome.

APPENDIX A

SUMMARY OF REVIEW OF LITERATURE FOR CHANGE TALK STUDIES

Appendix 1. Summary of Change Talk Findings			
Author (Year)	Population/Target Behavior	Coding System Used	Significant CT/ST Findings
Amrhein et al., 2003	Drug abuse (N=84)	Modified MISC 1.0 Coded for frequency and strength; strength coded as -5 to +5 and averaged for each category standardized sessions to deciles	Strength of commitment language at end of session (7 th and 10 th deciles) predictive of drug use above and beyond BL drug use strength ratings for desire ability need or reasons significantly related to commitment language
Hodgins, Ching, and McEwen (2009)	Pathological gambling (N=40)	Used modified version of MISC 2.0 Baseline session only; study design had follow-up calls but not all were in MI Coded for content and strength, separately for each category 1 to 2	commitment language predicts gambling outcomes over 12 months; strength throughout the whole session related to outcome; commitment strength in latter part of session not predictor; preparatory language does not predict outcome; ability and readiness associated with commitment
Aharonovich, Amrhein, Bisaga, Nunes, and Hasin (2008)	Adult cocaine dependent patients (N=24)	Procedures used in Amrhein et al. 2003; modified MISC 1.0 Strength and frequency of commitment language coded; strength from -5 to +5, mean strength values used, average over coders	Mean commitment strength across section segments predict reduced drug use; not related to treatment retention Cognitive function related with commitment shift; shift related to treatment retention but not to reduced drug use
Gaume, Gmel, & Daeppen (2008)	Brief alcohol intervention; (N=97)	MISC 2.0 Average strength calculated for each component, used -5 to +5 scale; did not use frequency of language; nor total strength	For weekly drinking: ability significantly correlated with drinking difference in expected direction (high ability – greater decrease in consumption) For heavy drinking: ability and taking steps had significant correlation with decrease in heavy drinking; Commitment not found to be significant but participants showed little commitment language
Baer et al. 2008	Homeless adolescents (13-	MISC 1.0	Frequency: Reasons were associated with

	19) with alcohol or illicit substance use not seeking treatment (N=54)	<p>Positive and negative valence for each (i.e CT and ST, no strength)</p> <p>Tally for each type of CT across 5 minute intervals within each session and converted to average to account for varying session length</p>	<p>reductions in substance use at 1 month; commitment was not</p> <p>Statements about ability and desire against change strongly and negatively predictive against change at 1 and 3 month follow-up; negative statements although few are predictive of outcome</p>
Walker 2011	Marijuana dependent adults (N=61)	<p>Client Language and Coding System (CLACS) used</p> <p>Sessions divided into 3 sections based on information presented (deciles sorted into 3 sections)</p> <p>Strength coded on -5 to +5, averaged per section, for each. Did not use Total</p>	<p>Strength: desire and reasons for change during the feedback portion of sessions significantly predicted marijuana treatment outcome through the 34 month follow-up controlling for BL levels of marijuana use or motivation to change</p> <p>Commitment not associated with outcomes</p>
Martin, Christopher, Houck, & Moyers (2011)	Project MATCH; (N=118)	<p>Use SCOPE (sequential code for observing process exchanges); coding 2 passes (first pass to identify utterances; coding on 2nd)</p> <p>Frequency counts used; factor analysis; no total calculated, no strength used</p>	<p>6 factors: Factor 1 (commit – desire – reasons – and need) motivation to keep status quo; Factor 2: steps + steps – and need – (actions rather than movement); Factor 3: desire+, reason+, need+, other+ speech (preparatory language); Factor 4: ability + commit + and follow; Factor 5: ability + and ability -; Factor 6: follow and ask</p> <p>Factor 2 significant for proximal percent days abstinent (PDA)</p> <p>Factor 3 and 5 significant for distal PDA</p>
Moyers et al. 2007	<p>2 separate studies</p> <p>Study 1: 38 sessions; 5 sites of MATCH</p> <p>Study 2: 45 sessions of New Mexico site of</p>	<p>Study 1: SCOPE (note on scope is that resistance is categorized as Client Other)</p> <p>Examined both counselor and client; calculated conditional probabilities among therapist behaviors and the client behavior that follow</p>	<p>Single generic change talk category predict drinking outcomes</p> <p>Study 1: MI consistent behaviors led to increased CT; inconsistent led to ST.</p> <p>Study 2: CT and ST account for significant</p>

	MATCH	<p>Study 2: MISC 1.0 Not just MI; wanted to see if client language predictive in other approaches</p> <p>Did not use strength; did not categorize</p>	<p>variability in distal outcome controlling for baseline measures of severity and readiness</p> <p>Used interaction of CT and ST as predictor: not significant; therefore separate constructs and not necessarily on continuum</p>
Moyers, Martin, Houck, Christopher, and Tonigan (2009)	Project MATCH Motivational Enhancement Therapy condition (N=118)	<p>Sequential behavioral coding system (SCOPE) to observe the temporal order of behaviors;</p> <p>Coded total, did not use categories or strength</p>	Therapist behavior predict client change talk; client global change talk predict drinking outcome; support for mediation found
Vader, Walters, Prabhu, Houck, & Field (2010)	Drinking behavior (N=126)	<p>MISC 2.1</p> <p>Although coded for individual category did not use category in analysis, only used Total. No strength calculated</p>	<p>MI with Feedback group, MI consistent counselor language associated with change talk</p> <p>MI with feedback greater change talk led to improved drinking outcome; greater sustain talk led to poorer drinking outcome</p>
Pirlott, Kisbu-Sakarya, DeFrancesco, Elliot, and MacKinnon (2012)	Healthy diet and regular exercise to increase dietary fruit and vegetable intake (n=43)	<p>MISC 2.1</p> <p>Coded for categories, only used Total score for CT and ST; no strength calculated</p>	<p>Total positive change talk and correlated with fruit/vegetable intake</p> <p>Sustain talk did not correlate with counselor scores or consumption</p> <p>Found support for mediation: MI counselor behavior predict increase in total CT which in turn predict increased consumption</p>
Kaplan, Keeley, Engel, Emsermann, Brody (2013)	Depression medication adherence (N=63)	<p>MITI 3.1.1 and MISC 2.1</p> <p>Only used Total CT and St; no strength calculated</p>	<p>CT statements associated with filling first prescription, making more than 2 CT statements associated with higher adherence</p> <p>MI-consistent behaviors associated with greater CT</p>

APPENDIX B

MANUAL FOR THE MOTIVATIONAL INTERVIEWING SKILL CODE, VERSION 2.1

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Manual for the Motivational Interviewing Skill Code (MISC)

Version 2.1

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A. Introduction to MISC Version 2.1

The Motivational Interviewing Skill Code (MISC) was originally developed in 1997 as a method for evaluating the quality of motivational interviewing (MI) from audiotapes and videotapes of individual counseling sessions. The possible uses of MISC include:

- Documenting counselor adherence to MI within clinical trial protocols
- Providing detailed session feedback for counselors in the process of learning MI, including specific goals for improved skillfulness
- Evaluating the effectiveness of training in MI by comparing counselor skills before and after training
- Conducting psychotherapy process research to examine relationships among counselor and client responses
- Predicting treatment outcome from psychotherapy process measures
- Generating new knowledge about MI and its underlying processes of efficacy

Over years of using MISC 1 we have learned much about which categories were redundant or unreliable, and also about which processes are most important to the effectiveness of MI. The MISC has also helped us to clarify the points at which skill acquisition in MI is more challenging.

Based on this experience, we have developed Version 2.1, which is intended to improve on earlier version of the MISC in reliability, efficiency, and relevance to training and clinical practice. A disadvantage of revising an instrument, of course, is that one must start over in demonstrating its reliability and validity. Although many strong features of MISC 1.0 have been retained, we have also made substantive changes that we believe will further strengthen this instrument. In the interim, while we are studying the characteristics of this new version, it may be desirable for some purposes to continue using MISC 1, which has known psychometric properties. Section A outlines the significant changes that have been introduced with MISC 2.1, and the rationale for these changes.

As psychometric data for MISC 2.1 emerge and further refinements are made, we will be issuing subsequent revisions. When revisions are minor, we will retain the same version number (e.g., 2.0) and give the date of update. As significant revisions are made that affect coding, we will change the version number designation (2.2, 2.3 etc.). Before making use of this coding system, check to make sure that you have the most current version. Information is posted on the Motivational Interviewing website at www.motivationalinterview.org.

A.1 Changes in the Structure of MISC

MISC Version 1 required three “passes” through each tape: (1) an initial pass for completing global rating scales; (2) a second pass in which each counselor and client utterance was classified within a behavior code; and (3) a final pass in which counselor and client talk time were recorded. In MISC 2.1 we no longer include the third pass for timing of relative counselor and client talk time. We found that the timing pass was not cost effective. It yielded relatively little information for the additional time required, and did not add to the predictive utility of MISC. Investigators who are particularly interested in client and counselor talk time may,

of course, still choose to include this timing pass. We found that recording client and counselor talk time had very high inter-coder reliability (usually > .95).

MISC 2.0 retained two separate passes: a first pass for the global rating scales, and a second pass for behavior classifications. This proved quite challenging for coders, as it required them to track 18 counselor behavior codes and seven client behavior codes, six of which required an additional quantification of strength from -5 to +5. With MISC 2.1, we recommend a total of three separate passes: the first pass for global ratings, a second pass for counselor behavior codes, and a third pass for client behavior codes. With experienced coders, it may be possible to combine the second and third passes.

It would be conceivable, of course, to perform one pass each for therapist and client, in which behavior classifications are completed, then at the end of each pass to complete the global ratings. This may still be desirable in cases where therapy process and therapist competence are of more interest than is treatment integrity, particularly when cost is an issue. In general practice, however, we have chosen to retain three separate passes for three reasons. (1) The first pass allows the global ratings to be uncontaminated by behavior counts. (2) The first pass provides an uninterrupted overall perspective on the session, which we believe is helpful in making accurate global ratings. (3) If the same coder performs all three passes, the first pass provides a contextual perspective within which to complete the behavior codes. It remains to be determined whether in fact global ratings are biased by prior completion of behavior coding, or whether second pass codes are any different when done by coders who did (versus did not) complete the first pass.

Important new knowledge regarding the psycholinguistics of MI emerged from research directed by co-author Paul Amrhein. Previously we had been successful in predicting (lack of) behavior change from client resistance levels (e.g., Miller, Benefield & Tonigan, 1993). Mean levels of client "change talk," however, rather consistently failed to predict behavior change – an important problem for the theory of motivational interviewing (Miller & Rollnick, 2002). Amrhein's research revealed why change talk, as we were coding it in MISC 1, failed to predict behavioral outcomes (Amrhein et al., 2003). First, our definition of change talk included a wide range of statement types, including those reflecting desire, ability, reasons, need, and commitment to change. In Amrhein's study, only commitment language predicted behavior change. The other four (desire, ability, reasons, and need) predicted the occurrence of subsequent committing language, and thus influenced behavior change indirectly. This finding paralleled what were previously described as "Phase 1" and "Phase 2" of MI (Miller & Rollnick, 1991). In Phase 1, the goal is to enhance motivation for change (e.g., by evoking client speech regarding desire, ability, reasons and need to change). In Phase 2 of MI, the goal shifts to strengthening commitment to change (i.e., evoking client committing speech). We had not differentiated these tasks before, and separate attention to committing speech turns out to be important. Using these new definitions for client language, the frequencies of both change talk and sustain talk independently predict outcomes (Moyers et al., 2007).

Second, we learned from Amrhein's work that when predicting outcomes, the *slope* of committing speech across the course of an MI session may provide information above and beyond that obtained from the *mean* level of committing speech.

Finally, we discovered that client change language is not constant over an MI session. In highly structured MI-T sessions, Amrhein found that the strongest prediction of behavioral outcomes came from client speech toward the *end* of the session, when the client's plan for change was the primary topic. Client commitment level at the beginning of an MI session, when clients discussed their reasons for presenting for treatment, did not predict the probability of behavior change. When client language is of interest we recommend coding the entire MI session with MISC so that dynamic patterns of this kind are not missed.

The fact that slope, in addition to mean, predicts behavior change suggested another adaptation of the MISC. In the second pass of MISC 1, we had simply kept a tally of the total number of responses within each behavior category across the entire coding period. This prevented us from examining behavior at different points in the session. A sequential coding system, the Sequential Code for Observing Process Exchanges (SCOPE), was developed for this purpose. Sequential coding retains the order in which therapist and client behaviors occur. Using the SCOPE, it is possible to evaluate the impact of therapist behaviors upon subsequent client behaviors (Moyres & Martin, 2006). Where detailed information about therapy process is desired, we recommend sequential recording of behavior codes using the SCOPE.

B. Coding Instructions: First Pass Global Ratings

The MISC 2.1 is designed for rating an interview between two individuals, identified in this manual as the Counselor and the Client. Many other descriptors could be used for the counselor (e.g., clinician, doctor, interviewer, practitioner, counselor) or client (e.g., consumer, patient, student). These particular terms are used here simply for convenience and consistency.

B.1 Global Counselor Ratings

A global score requires the coder to assign a single number from a seven-point scale to characterize the entire interaction. The first pass of MISC 2.1 includes counselor ratings on three dimensions: Acceptance, Empathy and Spirit. Global scores are intended to capture the rater's overall impression of the counselor's performance during the interview. While this may be accomplished by combining a variety of elements, the rater's gestalt or all-at-once judgment is paramount. The global scores should reflect a holistic evaluation of the counselor, one that cannot necessarily be separated into individual elements. Global scores are given on a 7-point Likert scale, with the coder assuming a beginning score of 4 and moving up or down from there. For projects evaluating the integrity of MI interventions, or those desiring greater comparability with MITI scores, the MITI 3.0 globals may be used here instead.

Specific Guidelines:

- All ratings on this form are on a 7-point Likert scale.
- Ratings should be based primarily on the *counselor's* behavior during the observed session.
- Circle *one and only one number* for each item, and do not leave any item blank. Do not make ratings that fall between the whole numbers.
- These are global ratings, based on the *entire* interview or sample. Thus, for example, a rating of empathy is given for the *whole* interview, which might combine longer periods of high empathy and a few periods of low empathy.
- It is helpful to note **examples** of Empathy, Acceptance and Spirit on the Global Counselor Rating sheet as you listen to the session.

Acceptance

This rating captures the extent to which the counselor communicates unconditional positive regard for the client. A rating should be made starting at 4, and moving toward either the high (7) or low (1) end of the scale based on the following criteria:

High Acceptance. Counselors high on this scale consistently communicate acceptance and respect to the client. They may be perceived as warm and supportive, but the key attribute is to communicate unconditional positive regard for the client.

Low Acceptance. Counselors at the low end of this scale consistently communicate non-acceptance, disregard, or disapproval of the client. They may be perceived as judgmental, harsh, disrespectful, labeling, or condescending.

Differentiating Acceptance from other counselor characteristics. Acceptance is person-focused (unconditional positive regard) and should not be confused with agreeing with the client's opinions or approving of the client's behavior. A counselor may:

Reject a client's opinions without agreeing with them (acceptance vs. agreement)

Accept a client's choices without approving of them (acceptance vs. behavioral approval)

Support the client as a worthwhile human being without either condemning or condemning the client's actions and views (acceptance vs. judgment)

Empathy

This rating is intended to capture the extent to which the counselor understands and/or makes an effort to accurately understand the client's perspective. A rating should be made starting at 4, and moving toward either the high (7) or low (1) end of the scale based on the following criteria:

High Empathy. Counselors high on this scale show an active interest in making sure they understand what the client is saying, including the client's perceptions, situation, meaning, and feelings. The counselor accurately follows or perceives a client's complex story or statement or probes gently to gain clarity. Reflective listening is an important part of empathy, but this global rating is intended to capture all efforts by the counselor to understand accurately the client's perspective and convey that understanding back to the client. Nevertheless, a high rating on Empathy requires more than questions asking, and reflects skillful use of reflective listening.

Low Empathy. Counselors at the low end of this scale show little interest in the client's own perspective and experiences. There is little effort to gain a deeper understanding of complex events and emotions. Counselors low in empathy may probe for factual information or to pursue an agenda, but they do not do so for the sole purpose of understanding their client's perspective. Reflective listening is noticeably absent.

Differentiating empathy from other counselor characteristics. Empathy is not to be confused with warmth, acceptance, genuineness or client advocacy. These characteristics are independent of the empathy rating. It is possible for a counselor to:

Work very hard to understand the client's perspective but not be especially warm or friendly while doing so. (empathy vs. warmth)

Understand fully without accepting the client's perspective. (empathy vs. acceptance)

Be fully present and authentic, but not make efforts to understand the client's perspective (genuineness vs. empathy)

Be invested in helping the client or gaining services for them without a particular effort to understand the client's perspective (client advocacy vs. empathy)

Motivational Interviewing Spirit

This rating is intended to capture the overall competence of the counselor in using **motivational interviewing**. It explicitly focuses on the three inter-related characteristics of **collaboration**, **evocation**, and **autonomy**. The rater should consider all three of these characteristics when assigning a value for this scale, and low scores in any of these dimensions should be reflected in a lower overall spirit score. Nevertheless, the global spirit rating is intended to capture the whole *gestalt* of the counselor's competence without too much "picking apart" of the scale's components. A rating should be made starting at 4, and moving toward either the high (7) or low (1) end of the scale based on the following criteria:

High MI Spirit: Counselors at the highest end of this scale clearly manifest all three of the following characteristics in the session:

Collaboration is apparent when counselors negotiate with the client and avoid an authoritarian stance. Counselors show respect for a variety of ideas about how change can occur and can accept differences between their ideal plan and what clients are willing to endorse. They avoid persuasion and instead focus on supporting and exploring the client's own concerns and ideas. These counselors minimize power differentials and interact with their clients as partners.

Evocation is apparent when counselors draw out the client's perspectives rather than "installing" the counselor's knowledge, insights and advice. They do not educate or give opinions without permission. They are curious and patient. They give the client the benefit of the doubt about wanting to change and show a focused intent to draw out the client's own desire and reasons for changing. Counselors high in evocation show an active interest in helping clients say to themselves the reasons that change can and should happen.

Autonomy-supportive counselors accept that clients can choose not to change. They may be invested in specific behavior changes, but do not push for an immediate commitment at the expense of "taking the long view" about the option of change in the future. They emphasize the client's freedom of choice, and convey an understanding that the critical variables for change are within the client and cannot be imposed by others.

Low MI Spirit: Counselors at the lowest end of this scale clearly manifest low levels of collaboration, evocation, and support for autonomy:

Low Collaboration is evident when counselors confront clients with their point of view. An authoritarian and rigid stance is apparent and little effort is made to include the client's ideas about how change might be accomplished. Low collaboration counselors attempt to persuade clients about the need for change. These counselors seem to view their clients as deficient in some manner and attempt to provide what is missing, often using an "expert" stance to do so. These counselors convey a sense of having expertise the client needs in order to make a change.

Low Evocation is evident when the counselor shows little or no interest in exploring the client's own reasons for change. They may convey an attitude of suspicion or cynicism about the client's desire to change. They may focus on giving information and advice, educating the client or giving logical reasons for changing. There is focus on the expense of arranging conversations so that the client talks himself or herself into changing.

Low Autonomy counselors communicate a lack of acceptance that clients might choose to avoid or delay change. They convey a sense of urgency about the need for change, and may use imperative language, telling clients what they "must" or "have to" do. Little emphasis or acknowledgment is given to the client's freedom of choice and self-determination.

Differentiating MI spirit from other characteristics. Motivational Interviewing Spirit is not to be confused with sympathy, expertise, education, skills building, uncovering unconscious motivations or spiritual guidance. A counselor might:

Feel sad that the client has so many burdens, without conveying a sense that the counselor can solve them. (sympathy vs. MI spirit)

Be able to give excellent advice to the client about how to solve problems, but fail to ask the client what he or she has already thought of. (expertise vs. MI spirit)

Help clients replace irrational thoughts about the benefits of continuing in a maladaptive behavior, rather than explore the client's perceived benefits. (skill-building vs. MI spirit)

Probe developmental antecedents of the client's need for a behavior, rather than asking about how that behavior is consistent or inconsistent with the client's current values and goals. (uncovering unconscious motivations vs. MI spirit)

Help the client to contact or utilize spiritual resources to assist in changing, rather than using reflective listening and open questions to determine the client's strengths and successes. (spiritual guidance vs. MI spirit)

B.2 Global Client Rating

The MISC 2.1 uses a single global rating of client Self-Exploration during a treatment session. This rating closely parallels the construct of experiencing used by Trux and Carlkuff in the study of client centered therapy. The rating should reflect the client's **high point** during the session. This is a period (more than momentary) that reflects the client's highest level of self-exploration during the session. Because client's behavior often changes markedly over the course of a session, this is *not* meant to be an average across the entire session.

Specific Guidelines:

- The rating is made on a 7-point Likert scale. Assign the rating that best describes the client's high point of self-exploration during the session.
- The rating should be based primarily on the client's behavior during the observed session.
- Circle **one and only one number**, and do not leave this item blank. Do not make a rating that falls between the numbers.

- It is helpful to note examples of self exploration and personally relevant material on the rating sheet as you listen to the session.

Client Self-Exploration (based on Truax & Carlhuff)

Rating Description

1	No personally relevant material is revealed or discussed by the client during the session.
2	The client avoids bringing up personally relevant material but may respond minimally if the counselor brings it up.
3	The client may respond to and elaborate on personally relevant material that is brought up by the counselor, but does not add significant material or volunteers information in a mechanical manner or without demonstration of emotional feeling.
4	The client elaborates on or volunteers personally relevant material with either spontaneity (not directly solicited by the counselor) or feeling, but not both.
5	The client elaborates on personally relevant material with both spontaneity (not directly solicited by the counselor) and feeling.
6	The client explores and discusses personally relevant material, discovering new feelings, perspectives, or personal meanings.
7	The client engages in active intrapersonal exploration, openly exploring values, feelings, relationships, fears, turmoil, life choices, and perceptions of others. Clients may experience a shift in perception.

Defining "Personally Relevant Material" in Coding Self Exploration

Personally relevant material may include expression or exploration of the following:

- Personal problems
- Self-descriptions that reveal the self to the counselor, expressions of the internal world
- Personally private material which when revealed tends to make the client more vulnerable or could be personally damaging
- Personal values, life choices
- Expression of feelings
- Personal roles, perception of one's relationship to others
- Perception of self worth

C. Coding Instructions: Second Pass Behavior Counts

C.1 Counselor Behavior Counts

Behavior counts are intended to capture specific behaviors without regard to how they fit into the overall impression of the counselor's use of MI. While the context of the exchange will have some influence on the way behavior counts will generally be determined as a result of organizations and decision rules (rather than attempting to grasp an overall impression), relying on inference to determine a behavior count is to be avoided.

C.1.1 Defining Counselor Utterances

- An utterance is a complete thought.
- An utterance ends either when one thought is completed or a new thought begins with the same speaker, or by an utterance from the other speaker.
- If two consecutive sentences used different codes (e.g., a Reflection followed by a Question), they are, by definition, separate utterances. Example: "So you feel confident that you can quit. What gives you that confidence?"
- Two utterances often run together without interruption, as with a sentence that contains more than one thought. Example: "You seem disappointed that you haven't quit, but you've made a fantastic effort." This is one sentence that is both a Reflection and an Affirm and should receive multiple codes.
- A client response always terminates a counselor utterance, and the next counselor utterance becomes a new response.

Example: (Counselor in normal type Client in bold type)

- "So you've cut down by ten cigarettes a day (Yes) and you smoke more in the morning than in the afternoon." **Reflect/Follow Neutral/Reflect**
 - "It's not easy (No, it's not) to quit." **Support/Follow Neutral**
 - "You feel like you can (Yes) do this." **Reflect/Change talk**
 - "So you've told me that you don't like the smell of cigarettes, (Yeah), the expense (Uh-huh) and what they do to your health." **(Right)**
- Summary/Change talk/Summary/Change Talk/Summary/Change Talk*
- #### C.1.2 Coding Counselor Utterances
- Once an utterance is complete decide in which of the main behavior categories it belongs. In some cases, sub classification is required within a category.
 - The tape may be stopped in order to deliberate carefully.
 - Each utterance receives one and only one code. The same utterance may never be given two different codes.

- Separate utterances, even if they occur within the same sentence, may each receive a separate code.

"Good morning, Susan./ Thank you for taking the time to speak with me this morning./
I'd like to start by talking about our last conversation./ Does that sound ok to you?"
(Filler/ Affirm/ Structure/ Closed Question)

C.4. Volleys: Definition

A *volley* is an **uninterrupted** sequence of utterances by one party, before another party speaks.

"It isn't my job to force you to quit or cut down. That's totally up to you. Only you know what's right for you./ We'll meet every week during the study, /but again whether or not you decide to make a change is your decision."

A volley is terminated when the other party speaks.

C.5. Coding of Volleys

A volley may contain only one of each behavior code. Once a behavior count is assigned within the volley it is not assigned again. Thus, as in the example above, the counselor Emphasizes Control in the first three utterances. The fourth utterance contains Structure and another Emphasize Control. The whole volley would be coded as Emphasize Control, Structure. (EC/ST)

C.6. Behavior Categories: Definitions and Abbreviations

There are 13 major categories of counselor behavior in MISC 2.1. Each has a unique 2-letter code. Four categories require differentiation between two subcategories, which are 3-letter codes. For these four categories, the two-letter codes (AD, QU, RC, RE) are not permissible alone, but must include the third (subcategory) designation. The Counselor Behavior categories are:

AD	Advise	Required subcategories: with (ADP) or without permission (ADW)
AF	Affirm	
CO	Confront	
DI	Direct	
EC	Emphasize Control	
FA	Facilitate	
FI	Filler	
GI	Giving Information	
QU	Question	Required subcategories: Closed (QUC) or Open Question (QUO)
RC	Raise Concern	Required subcategories: with (RCP) or without permission (RCW)
RE	Reflect	Required subcategories: Simple (RES) or Complex (REC)
RF	Reframe	
SU	Support	
ST	Structure	
WA	Warn	

Advise (with or without permission) (ADP/ADW)

The counselor gives advice, makes a suggestion, or offers a solution or possible action. These will usually contain language that indicates that advice is being given: should, why don't you, consider, try, suggest, advise, you could, etc.

Advise requires sub-classification for whether the advice was given with or without prior permission from the client.

Prior permission can be in the form of a request from the client, or in the counselor asking the client's permission to offer it.

Indirect forms of permission asking may also occur, such as a counselor statement that gives the client permission to disregard the advice ("This may or may not make sense to you").

(ADP) Advice with permission:

- "Would it be all right if I suggested something?"
- "We could try brainstorming to come up with ideas about quitting if you like."

(ADW) without permission:

- "Consider buying more fruits and vegetables when you shop."
- "You could ask your friends not to drink at your house."

Differentiating Advise from other categories

Advise should not be confused with Direct or Question.

- | | |
|----------------------------------------------------------|--------------------------------------|
| "Don't let your friends drink at your house." | Direct due to the imperative "Don't" |
| "Could you ask your friends not to drink at your house?" | Closed Question. |
| "What could you ask your friends to do to help you?" | Open Question. |

Affirm. (AI)

The counselor says something positive or complimentary to the client. It may be in the form of expressed appreciation, confidence or reinforcement.

The counselor comments on the client's strengths or efforts.

It is not necessary to subclassify Affirm responses.

Appreciation. The counselor compliments the client on a trait, attribute, or strength. The reference can be to a "stable, internal" characteristic of the client, something positive that refers to an aspect of the client that would endure across time or situations (smart, resourceful, patient, strong, etc.). It may also be for effort.

- "You're a very resourceful person."
- "Thank you for coming today."
- "You've made a huge cut in your smoking."
- "I've enjoyed talking with you today."

Confidence. The counselor makes a remark that bespeaks confidence in the client's ability to do something, to make a change, to predict success, or otherwise supports client self efficacy. These are related to a particular task, goal, or change.

- Client: "I don't think I can do it."
- Counselor: "You've succeeded through some difficult changes in the past."

Reinforcement. These are general encouraging or "applause" statements even if they do not directly comment on a client's nature, and do not speak directly to self efficacy. They tend to be short.

- "That's a good idea."
- "Good for you."
- "That's good."

Differentiating Affirm from other categories

Affirm should not be confused with Support or Emphasize Control.

Support takes on a sympathetic or agreeing quality, while affirm comments favorably on a client characteristic, bespeaks confidence, congratulates or encourages.

Emphasize Control takes precedence over Affirm when a counselor response could be interpreted as both.

- | | |
|--------------------------------------------|----------------------------------------|
| "That must have been difficult." | Support (sympathetic not appreciative) |
| "You've accomplished a difficult task." | Affirm (effort/reinforcement) |
| "It was your decision to come here today." | Emphasize Control |
| "I thank you for coming today." | Affirm (appreciation) |

Confront. (CO)

These are the expert-like responses that have a particular negative-parent quality, an uneven power relationship accompanied by disapproval, disagreement, or negativity. There is a sense of "expert override" of what the client says.

The counselor *directly* disagrees, argues, corrects, shames, blames, seeks to persuade, criticizes, judges, labels, moralizes, ridicules, or questions the client's honesty.

Included here are utterances that have the form of questions or reflections, but through their content or emphatic voice tone clearly constitute a roadblock or confrontation.

If you are in doubt as to whether a behavior was a confront or some other code do not code it as Confront.

Re **emphasizing negative consequences** that are already known by the client constitutes a Confront, except in the context of a Reflection. The Reflection restates information presented by the client and is merely reflected back to the client without disapproval or negativity.

Client: "I can't believe they took my license away."
 Counselor: "You know you'd lose your license and you drove anyway." **Confront**
 (criticizes)

Client: "I looked for a job this week."
 Counselor: "Sure you did. Right." (Disbelieving, sarcastic voice tone) **Confront**

Client: "I thought when I got pregnant I'd quit smoking for the baby, but I haven't."
 Counselor: "You're willing to jeopardize the baby's health just for cigarettes." **Confront**
 (judgmental, shaming, re-emphasizes consequences not voiced by the client)

Differentiating Confront from other categories

Do not confuse Confront with Reflect or Question or Facilitate.

Confront should be unmistakably confrontational. Subtle inference is not sufficient reason to code a counselor's behavior as Confront.

If a question has a sarcastic tone, code as Confront as referenced above.

Client: "I don't really have a problem with alcohol."
 Counselor: *Drinking really hasn't caused problems for you.* **Reflection**
 or Counselor: *So YOU think that you don't have any problems AT ALL!* **Confront** (conveyed by sarcastic tone in vocal emphasis)

Client: "I can't believe I missed work and blew a good job just to party."
 Counselor: "It seems like a high price to pay for a good time." **Reflection**
 or Counselor: "Well, surprise surprise! Imagine that!" **Confront** (sarcasm)

Client: "I don't care if I love my job because I think too much."
 Counselor: "Losing your job is a pretty high price to pay for having a good time." **Confront**
 (disagree)
 or Counselor: *It really doesn't matter to you.* **Reflect**

Client: "I feel kind of run down."

- Counselor: "Don't you understand what drinking is doing to your health?"* **Confront**
- or *Counselor: "Do you think alcohol is affecting your health?"* **Question** (not sarcastic in tone)
- or *Counselor: "Do you think that alcohol might be responsible, anyway?"* **Confront** (sarcastic tone)
- Client: "I didn't drink all weekends."*
- Counselor: "So you say. Tell me another one."* **Confront**
- or *Counselor: "Uh huh"* **Facilitate**

Occasionally a **Confront** can masquerade as an **Affirm**.

- Client: I went for five days without drinking this week.*
- Counselor: I told you you could do it!* **Confront** (Expert, paternal quality)
- or *Counselor: Good for you!* **Affirm**
- Client: I'm doing a little better, I guess, but I feel like it's pretty hopeless.*
- Counselor: But look how much progress you've made!* **Confront** (disagreement)
- or *Counselor: You can see some progress, but mostly you've discouraged.* **Reflect**

Direct (D1)

The counselor gives an order, command, or direction. The language is imperative.

- "Don't say that!"
"Get out there and find a job."

Phrases with the effect of the imperative tone include:

- "You need to ___"
"I want you to ___."
"You have to ___"
"You must ___"
"You can't ___"

Examples.

- "I want you to watch this video."
- "You've got to stop drinking."
- "You must have more respect for yourself."

Differentiating Direct from other categories

Direct should not be confused with Affirm, Advise or Confront.

- "You could try looking for a job this week." Advise
- "I want you to try to find a job." Direct
- "There's no reason for you not to be working." Confront
- "You should be proud of yourself for finding a job." Affirm
- "Now get out there and get a job!" Direct

Emphasize Control (EC)

The counselor directly acknowledges, honors, or emphasizes the client's freedom of choice, autonomy, personal responsibility, etc. This may also be stated in the negative, as in "Nobody can make you change." There is no tone of blaming or faultfinding.

Statements acknowledging the client's autonomy in an accomplishment are coded as Emphasize Control rather than Affirm.

Client: "I want for five days this week without drinking"

Counselor: "You made that choice. Emphasize Control

or Counselor: "Good for you! Affirm

Emphasize Control takes precedence over Affirm or Reflect when a counselor response could be interpreted as both.

- "It is totally up to you whether you quit or cut down."
- "It's your decision."
- "You know what's best for you" (No sarcasm)

Differentiating Emphasizing control from other categories

Emphasize Control should not be confused with Affirm, or Confront, or Reflect.

When one utterance can clearly be coded as an Emphasize Control, an Affirm or a Reflect, Emphasize Control takes precedence.

"It's great that you're doing this for yourself." Affirm (reinforcement)

“It’s your decision whether you quit or not.” (choice)	Emphasize Control (freedom of choice)
Client: “I’m finding this difficult.”	
Counselor: “You’re the one who has to change.”	Confront (negative quality)
Client: “I need to make up my mind about drugs.”	
Counselor: “You’ve ready to make a decision.”	Reflect
Client: “Since I’m quitting, I won’t allow smoking in the house.”	
Counselor: “You’re setting your own goals and boundaries.” (Reflect)	Emphasize Control (act Reflect)

Facilitate (FA)

These are simple utterances that function as keep going acknowledgments: “Mm-hmm.” “OK.” “Tell me more.” “I see.”

Facilitate responses are stand alone utterances. They do not usually occur with other counselor responses in the same volley. Do not code as Facilitate if the vocal sound is a preface to some other counselor response like a Question or a Reflect. In these combinations, code only the second response. No Facilitate would be coded for

“OK, well let’s get started with these questionnaires, then.” Structure

Do not code as Facilitate if the vocal sound serves as a time holder (uh...) that serves to delay the client’s response, rather than having the “go ahead” function. These are not coded at all. Instead what follows is coded

“Obviously, I think it’s about four standard drinks.” Giving Information

In videotape coding, do not code a breath-word or other non-stated acknowledgment as Facilitate, unless it is accompanied by an audible utterance.

A counselor may make an utterance that sounds like a Facilitate but has a negative or sarcastic quality. It must unambiguously disagree, question the client’s honesty, express irritation, etc. These have a “Yeah!” or “Ahh!” or cynical “Yeah, right!” quality. Code as Confront.

Differentiating facilitators from other categories

Do not confuse Facilitate with Question or Confront

Some brief utterances sound like Questions, but function as Facilitates: “Oh, did you?” “Really?” If voice tone clearly implies skepticism (“Oh you did, did you?”) it would be coded as Confront.

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If a Facilitate has a sarcastic or cynical quality it is coded as a **Confront**. When in doubt code, however, as **Facilitate** rather than **Confront**.

Filler. (FI)

This is a code for the few responses that are not codeable elsewhere: pleasantries, etc. It should not be used often. If these exceed 5% of Counselor responses, they are probably being over-coded.

"Good Morning, John."

"I assume you found a parking space OK."

"Nice weather today!"

Giving Information (GI)

The counselor gives information to the client, explains something, educates or provides feedback or discloses personal information.

When the counselor gives an opinion but does not advise, this category would be used.

It is no longer necessary to distinguish among types of Giving Information. If a Counselor response fits any of the following example types, code it as Giving Information.

Some example types of Giving Information include providing feedback from assessment instruments, explaining ideas or concepts relevant to the intervention, or educating about a topic.

Providing feedback from assessment

"You indicated during the assessment that you typically drink about 18 standard drinks per week. This places you in the 90th percentile for men your age." **Giving Information**

"Your blood pressure was elevated when the nurse took it this morning." **Giving Information**

Personal feedback about the client that is not already available

"Your doctor tells me you've been struggling with your glycemic control." **Giving Information**

"I talked to your wife and she said she was really worried about your drinking." **Giving Information**

Explaining ideas or concepts relevant to the intervention

"This homework assignment to keep a diary of your urges to drink is important because an urge is like a warning bell, telling you to wake up and do something different." **Giving Information**

Education about a topic

"Individuals who eat five fruits and vegetables each day reduce their cancer risk five fold. For certain kinds of cancer, like colon cancer, it's even more of a reduction." Giving Information

Differentiating Giving Information from other categories

Giving Information should not be confused with Warn, Direct, Confront, Advise or Reflect.

Reviewing information contained on assessment instruments does not typically qualify as a Reflection

Informing can become a Warn if there is a tone of threat or coercion.

"If you do tell me that you've used drugs, I am required to disclose that to your probation officer." Giving Information

"If you tell me that you've been using drugs, I'm going to tell your probation officer." Warn

Giving Information can be combined with other responses that go beyond the simple provision of information:

"You indicated during the assessment that you typically drink about 48 standard drinks per week. That much drinking is bound to damage your health sooner or later." Giving Information/
Warn

"Here is a diary that you can use to keep track of urges." Giving Information

"Keep track of your urges this week, using this diary, and bring it in next week to review with me." Direct

"Well, you are only eating two fruits per day according to this chart, even though you think you are eating five. It can be easy to deceive yourself." Confront

"AA worked for me (Giving Information), and it will work for you if you give it a try (Confront). We need to find the right AA meeting for you. You just didn't find a good one." (Advice without Permission)

Question (QU)

The counselor asks a question in order to gather information, understand, or elicit the client's story. Generally these begin with a question marker word: Who, What, Why, When, How, Where, etc.

Questions require sub-classification as either Closed (QUC) or Open (QUO)

A question may also be stated in imperative statement language: "Tell me about your family." (QUO). These are coded as Question, and not as Direct.

There may be two separate utterances that constitute both a **Reflect** and a **Question**. In transcript these would usually be written as separate sentences. Sometimes, however, the counselor begins with a **Reflect** but turns it into a **Question** to check the accuracy of the **Reflection** or to move forward. When both elements are present within the same utterance, only the **Question** is coded.

The exception to this is "near reflection" when a **Reflect** is inflected upward at the end (implying a question), and that is *the only* difference from a reflective listening statement. Reflections that are inflected upward at the end are still coded as **Reflect**, unless they contain specific words that mark them as a question.

Client: I'm just not sure what's going to happen with this relationship. Sometimes we seem to be so good together, and sometimes it's a disaster.

Counselor: *This relationship has been a mixed blessing for you.* **Reflect**

or Counselor: *This relationship has been a mixed blessing for you?* (voice inflects upward at the end) **Reflect**

or Counselor: *This relationship has been a mixed blessing for you, has it?* **Closed Question** because of the question words "has it?" inserted at the end.

or Counselor: *This relationship has been a mixed blessing for you. Tell me more about how you are together.* **Reflect/ Open Question**

or Counselor: *Has it been kind of a mixed blessing for you?* **Closed Question**

Closed Question (QUC)

The question implies a short answer: Yes or no, a specific fact, a number, etc.

The question specifies a restricted range or satisfies a questionnaire or multiple-choice format.

This includes a "spoiled open question" where the counselor begins with an open question but ends it by asking a Closed Question. In this case, the QUC is not coded, but only QOC.

"Tell me about your smoking. How old were you when you started?" **Closed Question** (A "spoiled open question")

All of these are **Closed Questions**:

"Did you use heroin this week?" (Yes or No answer)

"Where do you live?" (Specific fact)

"Do you want to stay where you're at, quit, or cut down?" (Multiple choice)

"On a scale from 0-10 how motivated are you to quit?" (Restricted range)

Open Questions (QUO)

An open question is coded when the counselor asks a question that allows a wide range of possible answers.

The question may seek information, invite the client's perspective, or encourage self-exploration.

The Open Question allows for the option of surprise for the counselor.

If a counselor asks an Open Question and then gives a series of "for example" questions before the client answers, this is coded as *one* Open Question.

"What problems has cocaine caused for you? – health problems, legal problems, family problems, money problems?" This is one QUO.

An Open Question need not be in the form of a question. "Tell me more" is an Open Question.

These are all Open Questions:

"How might you be able to do that?"

"How do you feel about that?"

"In what ways has being overweight caused problems for you? For example, I wonder if you've felt bad about yourself, been left out of things, had health problems. Things like that."

"Tell me about your smoking."

Differentiating Questions from other categories

Question should not be confused with Facilitate, Confront or Reflect.

To qualify as a new reflection and be coded as **Reflect**, the utterance must be a reflection by definition, with the only difference being the inflection of voice at the end of the sentence. If question words are added to a reflection, code it as a Question.

Facilitate responses may resemble questions, but are characteristically short, and their function is to communicate. "Keep going."

Confront responses may also take the linguistic form of a question, but if they meet the definition for confrontation (above) they are coded as **Confront**.

"Really?" "Do you?" **Facilitate** (keep going, not sarcastic)

"How could you possibly not know what would happen?" **Confront** (critical, shaming)

"You smoke 15 cigarettes a day. . . or is it 20?" **Closed Question** (unless the context makes it an obvious **Confront**)

"So you you're drinking more. How much more?" **Reflect/ Open Question**

Client: "My drinking is OK during the week, but I really go overboard on the weekends."

Counselor: "You're OK except on the weekends?" **Reflect (near reflection)**

or Counselor: "Are you OK except on the weekends?" **Closed Question**

or Counselor: "You're OK except on weekends, are you?" **Closed Question**

Raise Concern (with or without permission) (RCP/ RCW)

The counselor points out a **possible problem** with a client's goal, plan, or intention.

It always contains language that marks it as the counselor's concern (rather than fact).

Raise Concern always requires sub-classification as to whether the concern was raised with or without permission.

Prior permission can be in the form of a request from the client or in the counselor asking the client's permission to offer it.

Indirect forms of permission asking may also occur, such as a counselor's statement that gives the client permission to disregard the counselor's concern.

Raise Concern may include elements of possible negative consequences as long as these are expressed as the counselor's own concern.

Examples: Raise Concern with Permission (RCP)

"This may not seem important to you, but I'm worried about your plan to move back to your old neighborhood".

"Is it OK if I tell you a concern that I have about that? I wonder if it puts you in a situation where it might be easy to start using again?"

Client: *What do you think of that idea?*

Counselor: *Well, frankly it worries me.*

Examples: Raise Concern without Permission (RCW)

"I'm worried that you may have trouble when you're around your old friends."

"I think you may wind up using again with your old friends."

Differentiating Raise Concern from other categories

Do not confuse Raise Concern with Advise, Support, Question, Giving Information, Confront or Warn

Advise is coded when the counselor is suggesting a form of action. Raise Concern does not advise a course of action, but rather points to a potential problem or issue for the client's consideration.

Support includes statements of compassion that can appear similar in language. The difference is that Raise Concern points to a particular issue, problem, or risk.

If concern is raised in the form of a question, code as *Question*, unless the counselor is asking permission to raise a concern in the form of a question.

In *Giving Information* the counselor provides factual information that is not identified as a concern.

Confront involves direct disagreement, argument, criticism, blame, blame, judgment, moralization, disapproval, etc. Confront has a particular negative parent quality that acts as a roadblock or confrontation. Confront contains language that implies the concern as "fact" rather than opinion or concern. Raise Concern contains language that identifies it as the counselor's concern only.

Warn always threatens or implies negative consequences without identifying them as the counselor's concern.

"I'm worried that you'll use drugs when you're bored."	RCW- (no advice given)
"You could ride your bike when you get bored."	Advise (makes a suggestion)
"I've been concerned about you this week."	Support (sympathetic, no specific issue)
"Could I tell you what concerns me about your plan?"	RCP (not coded as Question)
"Boredom is a common trigger for drug use."	Giving Information (if the context does not imply Warn)
"How will you keep on track when you go back home?"	Open Question, not RCW or Confront)
"There's no way your plan will work if you're around your old friends."	Confront (factual statement)
"I'm concerned that you are an alcoholic".	Confront (labeling)
"If you get bored you'll use drugs."	Warn (negative consequences, not concern, fact)

Reflect (RES/REC)

A reflection is a reflective listening statement made by the counselor in response to a client statement.

It can reflect client utterances from the current or previous sessions.

Reflections capture and return to the client something that the client has said.

Reflections can simply repeat or rephrase what the client has said or may introduce new meaning or material.

Reflections can summarize part or all of a session.

Information that was provided by the client in a questionnaire or on an intake form can be coded as Reflect as long as it does not give the client new information.

Reflections require sub-classification as either Simple (RES) or Complex (REC).

When a coder cannot distinguish between a Simple and Complex Reflection, the Simple Reflection is the default category.

A reflection is still coded as Reflect even if the counselor's voice inflects upward at the end (a "near reflection"), as long as no question words are added. That is, the Reflect must be identical in all respects to a statement, except for the voice inflection at the end. Near Reflections may be coded separately from Reflect statements, as discussed below.

Simple Reflection. (RES)

Simple Reflections add little or no meaning or emphasis to what the client has said.

Simple reflections merely convey understanding or facilitate client/counselor exchanges.

Simply repeating or rephrasing what the client has said qualifies as a Simple Reflection.

They may identify very important or intense client emotions but do not go far beyond the original overt content of the client's statement.

Summaries pull together points from two or more prior client turns. Summaries are usually Complex Reflections, but can be coded as Simple Reflections if they add little or nothing to prior client statements. When in doubt, code a summary reflection as complex (REC). (There is no longer a separate Summary code.)

Complex Reflections. (REC)

Complex Reflections typically add substantial meaning or emphasis to what the client has said.

They convey a deeper or richer picture of the client's statement.

They contain significantly more or different content from what the client actually said.

The counselor may add subtle or obvious content or meaning to the client's words.

The following are almost always Complex Reflections

Analogy, metaphor and simile (not stated by the client)

Exaggeration or amplification by understating or overstating

"Continuing the paragraph" by anticipation of what the client might reasonably say next

Double-sided reflection containing both sides of ambivalence in a single Reflect

Summaries are usually coded as Complex Reflections when they add content or meaning to client statements.

Examples

Client: "I wouldn't mind coming here for treatment but I don't want to go to one of those places where everyone sits around crying and complaining all day."

Counselor: "You don't want to do that." **Simple Reflection**

Counselor: "So you're kind of wondering what it would be like here." **Complex Reflection**

Client: "The court sent me here."

Counselor: "That's why you're here." **Simple Reflection**

Counselor: "That's the only reason you're here." **Complex Reflection** (by amplification)

Client: "At one time I was pretty much anti anything but marijuana."

Counselor: "Marijuana was OK." **Simple Reflection**

Counselor: "That's where you drew the line." **Complex Reflection**

Client: "Everyone's getting on me about my drinking."

Counselor: "Kind of like a bunch of crows pecking at you." **Complex Reflection** (simile)

Client: "I don't like what smoking does to my health, but it really reduces my stress."

Counselor: "On one hand you're concerned about your health, on the other you need the relief." **Complex Reflection** (double-sided)

Counselor: "You don't like what smoking does to your health, but it's a stress-reducer." **Simple Reflection** because it adds nothing to what the client just said.

Client: "I'm a little upset with my daughter."

Counselor: "You're really angry at her." **Complex Reflection**
(overstates)

Counselor (looking at questionnaire): "So you said you eat about five fruits and vegetables a day, and that is the usual recommended daily level." **Simple Reflection**
Giving Information

Near Reflections. (NRS, NRC)

The codes NRS (Near Reflect Simple) and NRC (Near Reflect Complex) can be used to differentiate Reflects in which the voice inflects upward at the end. This is included as an option - an investigator may elect just to collapse Near Reflects with Reflects, in which case they would be coded only RSN or RSC as described above.

The purpose of including the Near Reflect code is to differentiate a counselor who is thinking reflectively, but missing the optimal form of a reflection by using a questioning tone at the end. A Near Reflection serves to reflect a client statement, but raises the voice inflection at the end, causing the reflection to resemble a question.

A Near Reflection must qualify as a reflection in every sense except for the inflection at the end of the statement. If words are added to the front or end of the statement that would typically mark a question, then Question is coded instead of Reflect.

Like other Reflect responses, Near Reflections require sub-classification as either Simple (NRS) or Complex (NRC).

Examples:

Client: "I'm OK drinking during the week, but I really drink a lot on the weekends."

Counselor: "You're OK except on the weekend." **RES**

Counselor: "You're OK except on the weekend?" **NRS**

Client: "I've tried to quit, but maybe I haven't tried hard enough."

Counselor: "You haven't given it your best effort yet?" **NRC**

Counselor: "You haven't given it your best effort." **REC**

Counselor: "Have you given it your best effort?" **QUC Closed Question**

Counselor: "What have you tried so far?" **QUO Open Question**

Differentiating Reflections from other categories.

Reflections can be similar to Affirmations, Confronts, Emphasize Control, Question, or Giving Information.

What may sound like an Affirm is a **Reflect** if it is reflecting what the client has said himself or herself. Similarly, in differentiating **Reflect** from **Emphasize Control**, the key factor is whether the counselor is reflecting something that the client has just said.

Never **Reflect** should not be confused with **Question**. Simply inflecting the voice upward at the end of a **Reflect** does not make it a question.

The differential between **Confront** and **Reflect** usually has to do with added emphasis that provides a clear tone of disagreement or sarcasm. Particularly subtle is differentiation between **Confront** and an amplified reflection. **Confront** should be unmistakably confrontational. Subtle inference is not sufficient reason to code a counselor's behavior as **Confront**. When in doubt, **Reflect** is the default.

Examples:

Client: "I don't really have a problem with alcohol."

Counselor: *Drinking really hasn't caused problems for you.* **Reflection**

or Counselor: *So YOU think that you don't have a problem in the world!* **Confront** (conveyed by sarcastic tone in vocal emphasis)

Client: "I don't care if I lose my job because I drink too much."

Counselor: *"Losing your job is a pretty high price to pay for having a good time!"*
Confront (disagrees - this is not a reflection of what the client said)

or Counselor: *It really doesn't matter to you.* **Complex Reflect**

Counselor: *It really doesn't matter to you at all.* **Complex Reflect (amplified)**

Client: "I think I can do this."

Counselor: *You believe in yourself!* **Complex Reflect (not Affirm)**

Client: "I drink this weekend."

Counselor: *"So you went and drank this weekend."* **Confront** (from judgmental tone)

Client: "I really think I can quit this time."

Counselor: *You're pretty sure you can do it."* **Reflect**

Counselor: *"You're very strong and resourceful."* **Affirm**

Counselor: "It's a decision only you can make." **Emphasize Control.**

Reframe. (Rt)

The counselor suggests a **different meaning** for an experience expressed by the client, placing it in a new light.

These generally have the quality of **changing the emotional valence of meaning**, from negative to positive or from positive to negative.

Reframes generally meet the criteria for **Reflect** but go further than adding meaning or emphasis by actually **changing the valence of meaning** and not just the details.

Reframing can involve giving the client **new information** in order to see their situation from a different perspective. In this case the information is a vehicle for reframing, and the default is **Reframe**.

Examples:

Client: My husband is always nagging me about taking my medication.

Counselor: "Sounds like he's pretty concerned about you." **Reframe** ("nagging" as "concern")

Client: "My wife and kids know I've cut down a lot, but every time I do smoke they make a remark."

Counselor: *Their efforts to help feel like pressure to quit.* **Reframe** ("pressure" as "help")

Differentiating Reframe from other characteristics

Reframe needs to be differentiated from **Reflect, Affirm, Giving Information, and Confront**

The above examples certainly reflect counselor understanding but they also **change the valence or emotional charge of a client statement.**

Client: I don't know if I can do it. I've tried so many times, and then something else comes up that I have to deal with first.

Counselor: *Something always gets in the way.* **Complex Reflect**

Or *Counselor:* *You have clear priorities.* **Reframe**

Reframe may make a positive attribution about the person, but the difference from **Affirm** is that it is a **direct restructuring of what the person has just said.**

Client: I don't think I can do it. I've tried so many times, and then something else comes up that I have to deal with first.

Counselor (M): I don't know. You're a pretty strong person. Affirm (it is not obviously linked to the content of the client's preceding statement)

Counselor: You have clear priorities. Reframe

The giving of information is only coded as a Reframe if it changes the valence of meaning of a client statement

Client: "Do people who go through this program quit the first time?"

Counselor: "Some do, and sometimes it takes a few tries before they succeed." (Giving Information)

Client: I've tried to quit before and failed.

Counselor: (each attempt can move you closer to success." Reframe ("I have" as "step toward success.")

Finally, **Reframe** can border on **Confront** because it involves an indirect form of disagreement with the client. The distinctive difference is that **Confront** has a corrective, explicit case that implies that the client is mistaken.

Client: I don't think I can do it. I've tried so many times, and then something else comes up that I have to deal with first.

Counselor (M): I don't know. You're a pretty strong person. Affirm (it is not obviously linked to the content of the client's preceding statement)

Counselor: You have clear priorities. Reframe

Counselor: Now look here. How can you fit them and tell me you can't do it when you know just well that you can!" Confront

Support (STU)

These are generally sympathetic, compassionate, or understanding comments.

They have the quality of agreeing or siding with the client.

Examples of Support:

"You've got a point there." Agreement

"That must have been difficult." Compassion

"I can see why you would feel that way." Understanding

"You have to help you with that." Compassion

Differentiating Support from other categories

Support needs to be differentiated from Affirm, Reflect or Confront

Affirm imparts appreciation, confidence or reinforcement

- "That's a difficult thing to say." Support (compassion)
- "I appreciate you saying that." Affirm (appreciation)
- "You've accomplished a very difficult task." Affirm (effort)

Client: "It wasn't easy to do that."

Counselor: "It was hard for you." Simple Reflection

Client: "I don't have a car."

Counselor: "That must make it difficult for you to get here for appointments." Support

Counselor: So that's your excuse for not keeping your appointments. Confront

Structure (S1)

To give information about what's going to happen directly to the client throughout the course of treatment or within a study format, in this or subsequent sessions.

To make a transition from one part of a session to another.

Examples of Structure:

- "What we normally do is start by asking you about your eating habits."
- "Now I'd like to talk with you about your motivation."
- "In this study I'll meet with you twice a month and the sessions will be tape recorded."
- "I usually meet with clients once a week for 10 weeks."

Differentiating Structure from other categories

Structure needs to be differentiated from Giving Information. If a counselor gives the client information about the study or treatment in general, code as Giving Information. When there is a clear purpose of preparing the client for what will happen, code as Structure.

- "We'll ask you about your smoking every week." Structure (directly pertains to client)

"We analyze all of the blood samples for nicotine levels." **Giving Information**

Warn (WA)

The counselor provides a **warning or threat, implying negative consequences** unless the client takes a certain action.

It may be a threat that the counselor has the perceived power to carry out or simply the **prediction of a bad outcome** if the client takes a certain course.

"You're going to relapse if you don't get out of this relationship."

"You could go blind if you don't manage your blood sugar levels."

"If you don't come to our sessions I'll have to talk to your parole officer."

"You can lose the weight you'll put on if you quit, but you can't lose cancer."

Differentiating Warn from other categories

Warn needs to be differentiated from **Advise, Confront, Direct, Inform or Raise Concern**.

Warn should always be identified as containing a threat or **implied negative consequences**. The following examples *do not* imply negative consequences.

"You should consider leaving your partner." **Advise** (suggestion)

"There's no reason for you to neglect your health." **Confront** (shames)

"You have to come to our sessions." **Direct** (lacks consequences)

"One of the health risks for diabetics is blindness." **Giving Information** (all diabetics)

When a potential negative consequence is expressed as a concern of the counselor, **Raise Concern** takes precedence.

"I'm worried that you'll relapse if you stay with your partner." **Raise Concern** (counselor's concern)

TRAINING STRATEGY FOR THE MISC

Training coders to competency, as measured by inter-coder reliability and matching to a gold standard, usually requires a stepped learning process. We have found that MISC coders do best beginning with fairly simple tasks and proceeding to more complex ones only when competence on the simpler tasks is solid. We recommend that coders begin by learning Level I tasks to an acceptable reliability and validity standard prior to attempting Level II tasks. Only when acceptable standards for combined I and II tasks have been accomplished

should coders begin on Level III tasks. The self-review of MI text and video learning tools can be used at any time (perhaps as a prelude to beginning Level I tasks).

The use of pre-scored gold standard transcripts will assist in evaluating coder competency and areas for improvement. We have found that coders often have difficulty in particular areas, requiring a more intensive focus on those topics. This can be identified by using standardized transcripts as a quiz for each level. More than one quiz is often needed. We have found that coders typically require 40 hours of training to reach interrater reliability using the MISC. In addition, regular (probably weekly) group coding sessions are optimal to insure drift does not occur. Clinical experience has not predicted ease of training or eventual competence in our laboratory.

Here are some examples:

Level I competencies: Start with second-pass coding of specific behaviors. Learn how to recognize and parse utterances. Learn to recognize and code the more discrete behavior categories, such as giving information and open/closed questions

Level II competencies: Add **Reflect** responses, and differentiate simple from complex. Learn differentials between similar response categories.

Level III competencies: Having mastered individual behaviors, include the global ratings.

D. Client Behavior Counts

The task of capturing the frequency, type and intensity of client language has proved to be a challenge in the developing research efforts to investigate the underlying processes in MI. Systems for thinking about and measuring such language during treatment sessions have been revised based on new data, new ideas about key constructs such as client resistance and evidence regarding the level of inter-rater reliability that can be achieved when parsing and coding client speech. Evaluating client language during MI sessions is very much like capturing a snapshot of a river: the outline is recognizable, but the content changes constantly.

The MISC 2.1 is intended for assessing client language within MI and MET sessions (and their variants) using audio or video recordings. As with all our coding systems, a transcript alone should never be used since the resulting loss in voice tone, inflection and pace renders an unacceptable loss of information and reliability. The entire session is coded and a code is assigned every time the client emits a codeable utterance. Client language coding in MISC 2.1 is exhaustive, but not mutually exclusive. In general, the complexity of client language coding in MISC 2.1 will require a separate review of the tape, possibly using a transcript, with clinician behavior to be evaluated on a different pass through the tape.

Overview of Changes and Essential Differences between MISC 2.1 and other MI client language Coding Systems

- 1) Within the MISC 2.1, "Reason" is an umbrella category, with *Desire*, *Ability* and *Need* representing subcategories of Reason. Thus, an utterance coded as a "Reason" may, or may not, receive additional subcodes of "desire", "ability" or "need".
- 2) An "Other" category has been added to reflect particular types of change talk that do not fall easily into the Reason category. Examples include hypothetical advice to others, if-then statements about the possibility of changing, and foretelling of future problems if change does not occur. Problem recognition also falls into the Other category.
- 3) The "Ask" category has been folded into Follow/Neutral.
- 4) Decision rules for minimal responses from clients have been elaborated, particularly with regard to speech that is "set-up" or prompted by the therapist.
- 5) Strength ratings for client utterances have been reduced to High, Medium and Low values. Due to ongoing reliability issues, these strength ratings are optional.
- 6) Client discussion of past behavior is now excluded from coding, with the exception of behavior immediately prior to the current treatment session.
- 7) Nomenclature of client language has been changed to be consistent with the Consensus Statement on Client Language (Junc, 2005) by Amrhein, Miller, Moyers and Rollnick.

D.1 Client language overview

Categorizing client language: Within the client language coding system, any language that moves in the direction of change is termed "change talk" and language indicating a movement away from change is termed

"sustain talk". Each of these positive (change) and negative (sustain) language categories is comprised of four categories: Reason, Other, Taking Steps and Commitment.

Identifying the Target Behavior Change (TBC): Use of MI to recognize, reinforce, and elicit client language presupposes that the interviewer has a target behavior in mind, so that he or she will know which particular instances of client language to attend to and which to ignore. Before evaluation of the tape begins, coders should be made aware of the target behavior change. In general, this is the problem area specified by the research protocol or the focus of the therapy session. A few examples of target behaviors are:

- Stopping smoking
- Increasing exercise
- Adhering to specific exercise guidelines
- Compliance with medication regimen
- Increasing fruit and vegetable intake
- Obtaining vaccines for children
- Abstaining from alcohol
- Holding toddlers while feeding them, instead of propping a bottle
- Journaling alcohol intake
- Wearing a helmet while riding a motorcycle
- Entering treatment
- Remaining in treatment

The target behavior must be specified in enough detail so that coders can reliably discriminate it from all other topics a client might discuss. The MISC 2.1 will evaluate client language related to that target behavior (or behavior change) *and no other*. Multiple target behaviors can be identified as long as the inclusion criteria are identified in advance and are specific. Examples of such target behavior "trees" are found below:

- Smoking Cessation (Target behavior)
- "Thinking Through" cravings
 - Throwing out cigarettes
 - Telling friends not to offer cigarettes
 - Avoiding high risk situations

- HIV Risk Reduction
- Using clean needles
 - Avoiding sex with multiple partners
 - Using a condom when having sex

- Reducing risk for complications of diabetes
- Counting carbohydrates
 - Checking feet for wounds
 - Testing blood sugar levels

In general, coders should not infer a link between actions being discussed by the client and the TBC goal, unless it is clear from the context that the purpose of the behavior is to move toward or away from the TBC goal. For example, if the TBC goal is to reduce cardiovascular risk, (and corollary TBC's have not been specified): "I wish I were less stressed" would not in itself indicate movement toward or away from the TBC goal. If, on the other hand, the client said, "Decreasing my stress at work would probably help my heart," it would be coded as

TBC. Similarly, if the counselor's or client's prior responses clearly provide a context for TBC, it is coded. For example, if the counselor asked,

"What could you do to reduce your risk of having another heart attack?" and the client replies, "I could exercise more," change talk would be coded even if the client does not directly state the connection. If the counselor says,

"One way that people can have a healthier heart is to stop smoking" the client's next response is likely to be relevant to TBC, whether positive or negative.

D.2 Coding Procedure

Elements of Coding. Speech in the MSC 2.1 is divided into clinician and client VOLLEYS. A volley is a speaking turn. A client volley occurs when the clinician stops speaking and the client begins. Client volleys can be lengthy or very short – even one word can be a volley.

Parsing Volleys into Utterances. Volleys are divided into utterances. Utterances are complete and separate thoughts within a volley. Utterances are defined by the meaning attached to them. A volley may have many different ideas, and therefore many utterances. Likewise, it may have only a single idea and therefore only one utterance. Generally, each utterance will merit a separate behavior code. If a client's volley includes two statements, each of which can be assigned a different code (as below), then both are coded as utterances. This would include

two utterances that would be given different signs:

*I really have to stop smoking (-).
My cigarettes are like a fiend to me ()*

or two utterances that state different content (e.g., reasons) for or against change:

*I'd have a better chance of getting my children back if I quit drinking (R-)
and I'm sure I'd feel better, too (R-).
but I would miss going out with my friends (R.)*

or two utterances that result in different strength scores (see below).

*Probably I do need to cut down a little bit. . . . (R+ Lo)
No, who am I kidding? I definitely need to cut down (R+ Hi)*

Even a single sentence might have two different ideas, both of which would constitute separate utterances

I could quit (+) but I don't want to ()

My drinking is not a problem (-), but I do need to drink less (+).

I know I ought to exercise more (), but I hate my knee getting up in the morning (-), even though it would do me good ()

Although longer volleys usually have more utterances, this is not always the case. It is possible for clients to speak at length about a single idea without deviating from it much, such as storytelling, or reporting past behavior. In this unusual case, only a single utterance would be parsed from the volley.

Client responses to clinician questions. Clients may respond to clinician questions with language that fits within any of the change talk categories, and it should be coded as such. The fact that the clinician “set it up” with a particular sort of question or comment does not mean that the client’s response is not change talk. Even a one word answer to a question may qualify for a change talk code if the coder deems it to be a genuine response rather than simply a socially facilitating response.

Counselor: On a scale from 0 to 10, how important is this change to you? Closed question

Client: I guess about a 3. R-d

Counselor: What are some of the good things about drinking, things you like about it? Open question

Client: I guess the way it makes me feel (R-d). But sometimes I don't feel too good the next day (R-d)

The Target Behavior Change (TBC)

Before you begin coding a session, it is essential to have a clear understanding of the Target Behavior Change (TBC), which is usually specified by the Principal Investigator. Examples of clear TBCs are:

- Stopping smoking
- Stopping or reducing use of alcohol
- Increasing dietary intake of fruits and vegetables
- Taking blood pressure medication as prescribed

Note that a well specified TBC includes both a target behavior (smoking, drinking, fruit/vegetable intake, taking medication) and a specified direction of change (stopping, increasing, adhering to prescription)

Sometimes the TBC may involve a specified class of behaviors. For example, the goal of reducing risk for HIV/HCV infection might include any of a specified set of behaviors including

- Avoiding (stopping or reducing) unprotected sex
- Avoiding alcohol/drug use prior to sex
- Avoiding needle sharing
- Sterilizing needles before re-use

In this case the Principal Investigator should specify the list of behavior changes that constitute TBC

Least desirable as the TBC is an ill-defined general goal, such as to “be healthy.” In this case, client speech relevant to TBC would be any behavior or change that the *client* clearly identifies as intended to move toward or away from the *general* goal. Coders should not infer a link between actions being discussed by the client and the TBC goal, unless it is clear from the context that the purpose of the behavior is to move toward or away from the TBC goal. For example, if the TBC goal is to reduce cardiovascular risk, and the Principal Investigator has not specified specific target behaviors, “I wish I were less stressed” would not in itself indicate movement toward or away from the TBC goal. If, on the other hand, the client said, “Decreasing my stress at work would probably help my heart,” it would be coded as TBC. Similarly, if the counselor’s or client’s prior responses clearly provide a context for TBC, it is coded. For example, if the counselor asked, “What could you do to reduce your risk of having another heart attack?”

And the client replies, "I could exercise more," it would be coded as TBC even if the client does not directly state the connection. If the counselor says,

"One way that people can have a healthier heart is to stop smoking"

The client's next response is likely to be relevant to TBC, whether positive or negative.

What is a Client Change Talk Utterance?

At the very least, any client "turn" in a conversation is one utterance, starting from the client's first word until the next person (typically a counselor) speaks. It is not uncommon, however, for a client turn to include more than one utterance. If a client's turn includes two statements, each of which can be assigned a different code (as below), then both are coded as utterances. This would include:

Two utterances that would be given different signs:

I really have to stop smoking (+),
but I just don't want to (-)

or two utterances that state different content (e.g., reasons) for or against change:

I'd have a better chance of getting my children back if I quit drinking (R+)
and I'm sure I'd feel better, too (R-),
but I would miss going out with my friends (R-)

or two utterances that result in different strength scores (see below):

Probably I do need to cut down a little bit . . . (N+1)
No, who am I kidding? I definitely need to cut down. (N+5)

D.4 Assigning Content Codes to Utterances. Each and every utterance within a volley will be assigned one of the following eight content codes.

- R:** Reason
(subcodes: d: Desire, a: Ability, n: Need)
- O:** Other
- TS:** Taking Steps
- C:** Commitment
- FN:** Follow/Neutral

With the exception of Follow/Neutral, every time an example of one of these occurs in client speech it is recorded with a positive (+) or negative (-) valence, depending on whether it reflects inclination toward (+) or away from (-) the TBC. Client language in favor of change is generally termed "Change Talk" while language moving away from change is called "Sustain Talk".

D.4.a. Reason: Statements of Reasons usually refer to a specific rationale, basis, incentive, justification or motive for making, or not making, the TBC. Client discussions of health, family problems, legal difficulties or other kinds of problems that are presented as a reason for considering change (or not changing) typically fall into the reason category. Client expressions of worry and concern about their behavior and circumstances are reasons to change (not simply the report of the concerns of others). "Ought" and "Should" statements are reasons to change. Benefits that would probably come to the client as a result of changing (+) are included in

this category, as well as likely disadvantages of changing (-) Hypothetical benefits (if-then) are included in the "Other" category. Statements incorporating the words "have to" or "got to" are reasons.

My liver's busted, so I have no choice. (R+)

I just don't drink that much. (R-)

I want my kids to have a real father. (R+)

It would be so good for my kids. (R+)

My drinking doesn't affect my kids. (R-)

My doc told me I'm going to lose my leg if I don't start checking my blood sugars. (R+)

My diabetes is as good as it's gonna get. (R-)

I've gotta get a grip on this (R+)

I've got a friend who got a head injury on his motorcycle and I don't want that to happen to me. (R+)

Only idiots need helmets and I am not an idiot. (R-)

I don't want my child to have all these expensive cavities. (R+)

My mother gave me my own bottle when I was her age and I never got cavities. (R-)

My drinking is getting worse. (R-)

My drinking is hopeless. (R-)

If I don't stop using crack, my wife will leave me. (R+)

If I have to use a condom, why even bother? (R-)

Protecting my health is the most important thing to me. (R+)

I have young children to take care of. (R-)

I just want to quit hearing those voices and the medicine helps with that. (R+)

I know I'd feel closer to God if I quit using drugs. They just keep me away from Him. (R+)

It's the right thing to do. (R-)

I'm a mother and I ought to take better care of my kids. (R+)

It's getting out of hand. I have to have my eye-opener in the morning. (R+)

D. 4. b Subcodes for Reasons: Any reason statement may receive an additional code indicating desire, ability or need.

D. 4. b. 1 Desire: Desire statements must have some form of one or more of the following words: "want", "desire", "like" or a close synonym of them. Depending on the meaning and context of the discourse, an antonym may also indicate a desire statement. The statement must refer to the target behavior, and not some other aspect of change.

I want to stop smoking (R+d)

I'd like to quit, yeah (R+d)

I hate a night without a buzz (R-d)

I love waking up sober (R+d)

I hate being an addict (R+d)

In the following exchange, the client statement is NOT desire:

T: So you see that quitting has its advantages.

C: It'd sure be nice.

While this client statement may seem to indicate desire, and probably does, it is NOT a desire statement, since it does not contain key desire words. See the discussion of the Other category for more examples of this type.

D. 4. b. 2 Ability: Ability statements are those that refer to the target behavior and include some form of the word "can", "possible", "willpower" or "ability" or a close synonym or antonym of them. Statements that indicate that changing the target behavior is difficult or hard should be coded as ability (R-a) statements. Obvious colloquialisms or turns of phrase that indicate ability may be coded as ability statements.

I am able to do that. (R-a)

I just can't quit. (R-a).

I can quit. (R-a)

I have the ability to stop smoking. (R+a)

I don't think I have it in me (R-a)

Once I make up my mind, I know I can do it (R+a)

I don't have much willpower (R-a)

It's not that hard to do (R+a)

Examples of statements that might seem to be, but are not, ability statements:

I can't smoke at work. (R+)

When I smoke I can think more clearly and focus for longer periods of time. (R-)

Don't be fooled, these statements include the word "can", but the "can" part does not refer to the target behavior. These statements are Reasons to change or maintain the status quo.

D. 4. b. 3 Need: These are statements that refer to the target behavior and include some form of the words "need" or "must". If the statement does not include the words "need" or "must", then they are not Need statements. If a statement does not refer to the target behavior, then it is not a Need statement.

I need to stop smoking. (R+n)

I must quit. (R+n)

I gotta do this. (R-n)

I need a cigarette. (R-n)

Examples that are NOT Need:

I need more money, so I should give up smoking. (R+)

I gotta get my life together, and part of that is laying off the booze. (R+)

"I have to do it" (R-)

These statements are Reasons to change.

Here is one that is a need statement followed by a reason:

I need to stop smoking (R-n) or I'm gonna get cancer (R+)

This statement should be parsed as two utterances, the first one coded as Reason-need and the second coded as Reason.

Decision Rule for D.A.R.N.:

The Reason code is the default when coders cannot decide among the DARN categories.

D. 4. c. Other: This category is intended to allow coders to capture language that clearly reflects the client's movement toward change, but does not necessarily fit easily into the Reason category. General statements of problem recognition will often reside in this category if they do not fall into one of the Reason categories. Similarly, minimization of problems will also be categorized here. Hypothetical language will usually fall into the Other category, as well as client statements of general attitude or advice to others with regard to the undesirability of the target behavior. In addition, coders may place in this category examples of language that are CLEAR and COMPELLING examples of the client's move toward change, but do not meet any criteria

other established here. All such examples must be recorded word for word and discussed in the weekly coding meeting.

I tell everyone I know, "Stay away from crack. That shit will just mess up your life." (O-)

"The right AA meaning is the key." (O-)

T: Did you come in to treatment on your own?

C: Yes, I know exactly where I belong. (O+)

Cocaine is just not the answer for me. (O+)

I'm going to be thinking positively about it. (O+)

I never have thought I was an alcoholic. (O-)

T: What will you put in place of drinking?

C: That's what I'm trying to find out. (O+)

I promised myself that if I do drink, I will tell you. (O)

If I weren't in AA right now, I'd be on a bender. (O+)

If I go to the track all day, I can actually save enough money to stay drunk. That's bad. (O-)

D.4 e.1 Differentiating Hypothetical Language from other codes

Hypothetical language coded within the O/Ues category should have the quality of a client *imagining* a different situation or outcome that would impact the target behavior. There is sometimes a useful quality to hypothetical talk ("If I could just go kayaking on the Colorado river for three weeks, I could quit smoking") or an if...then configuration ("If my wife would just quit pushing me, I know I'd do it.")

Sometimes if...then language will fall into another change talk category, usually Reason, and when it does it should receive that code instead. For example, a client might say, "If I could just stay sober, then I could really do well at this job." Because this probable outcome represents a reason for changing the target behavior, rather than an exercise in imagination, it should be coded as a reason.

If I could just stay off cocaine, I'd be a better mother. (R1)

If my kids were with me this weekend, I could stay off cocaine. (O1)

D.4 e.2 Differentiating Facilitating Language from Change Talk

Facilitating language in clients occurs when they respond to therapist speech with phrases such as "uh huh" or "yeah" or "sure". Usually, such utterances are NOT coded, as they are merely combination markers in the conversation. In essence, the client is saying, "Keep talking". However, these phrases CAN be coded as change talk, if they occur in response to a question/reflection that "yells" for change talk.

T: "Don't you ever wish things were different?"

C: "Yeah." (D+)

I: I'm going to look over this report and give you some feedback.

C: Sure. (F/N)

T: Then we can get your point of view.

C: ok. (F/N)

When client facilitates interrupt therapist speech, there is no need to code them.

I: On the one hand, you have decided that to quit drinking is going to be the best thing for you....

C: Uh-huh

T: ...and on the other hand you feel like it's going to be really tough...

C: Yeah

T: because you have tried it in the past and you feel like you have failed every time, even though you were able to stay sober for months at a time, which I really commend you on being able to do!

D. 4. d. Commitment Language: While change talk utterances reflect motivating factors related to change, Commitment Language implies an agreement, intention, or obligation regarding future TBC. Commitment can be expressed directly via a committing verb, or indirectly. Client statements of how they will rearrange their life in the future relating to the TBC are considered commitment statements. (Note that if this rearrangement is stated hypothetically, it would be coded as Other.).

I swear I'm going to stop this.

Nothing is going to stop me this time

With commitment language, if a reason is given, it is coded separately, but does not trump the commitment language. For example,

I'm going to do it. (C+)

I'm going to do it (C+) for my family. (R+)

No way I'm going to stop drinking. (C-)

I'm not coming to treatment (C-) because I don't have a drinking problem. (R-)

D. 4. e. Taking Steps: Concrete and specific steps the client has recently taken toward the behavior change are coded as Taking Steps. These statements usually describe a particular action that the person has done in the very recent past that is clearly linked to moving toward or away from TBC. To be coded, the behavior must clearly be one that is *intended* by the client to lead to (or away from) TBC. It is an intermediate response on the way to (or away from) the TBC. Taking Steps represents the only time that past client language is given a code.

The action may not be TBC itself. For example, if TBC is reduction in alcohol use,

I got rid of all the alcohol from my house this week. (TS+)

I went to two AA meetings this week. (TS+)

I bought a six-pack of beer this week. (TS-)

I stopped going to AA this week. (TS-)

I tried cooking without butter. (TS+) (concrete step)
I'm going to try cooking without butter. (C+) intention
If I tried cooking without butter, I'd reduce my fat intake. (O+)
I want I will stop this. (C+)
I'm always going to eat sweets. (C-)
I'll go to the gym everyday. (C+)
I'm going to throw away all of my cigarettes. (C+)
I threw away all of my cigarettes. (TS+)
I'll buy apples for snacks instead of chocolate. (C+)
I didn't drink at all last week. (TS+)
I worked overtime so I wouldn't be tempted to drink. (TS+)
I tell my partner I'm working late, then I go to the bar. (C-)

If a change talk utterance is made along with an Other, Commitment or Taking Steps statement, both utterances are coded. For example,

I'm going to do it. (C+)
I'm going to do it (C-) for my family (R+)

If I throw away all of my cigarettes, I'd be less tempted to smoke. (O+)

If I throw away all of my cigarettes I'd be less tempted to smoke (O+), but I'd be a nervous wreck. (R+)

I got my blood drawn for the HIV test this week. (TS+) but I can't deal with the stress of finding out the results. (R+).

D. 4. f. Follow/Neutral (FN). In a follow/neutral turn, there is no indication of client inclination either toward or away from the TBC. The client may be asking a question, reporting, making non-committal statements, saying TBC irrelevant things, or just following along with the conversation. Note that only TBC relevant change talk is coded. If the target behavior is cocaine use and the client says, "I want to get my children back," it would not be coded as + unless there is a clear link made between cocaine use and getting the children back.

T: Why are you here?
C: I want my children back." (FN)

Whereas:

T: Why would you want to quit cocaine?
C: I want my children back. (R+)

Sometimes clients will emit language that indicates they are listening to what therapists are saying, or that indicates a therapist should continue speaking. These are referred to as facilitating utterances. In general, client facilitating language, unlike that of therapists, is NOT coded.

T: You've really had a rough week.
C: Yeah. (FN)
T: But even with all of that, you were able to stay away from cigarettes.
C: Uh huh. (TS+)
T: We've spent some time talking about the things you enjoyed about drinking.

C: Uh huh. (not coded)

T: What I'd like to do next is to get your impressions of how drinking affected your life.

C: Okay. (not coded)

When you are in doubt about an utterance - when you are not sure if there is talk (+ or -) relevant to the TBC, the default code is Follow/Neutral (FN).

Finally, a client turn is coded at Follow/Neutral (FN) *only* if it contains no other codeable utterance. That is, for a sequence of utterances within a turn, any + or - code trumps a FN. Suppose that this were the conversation:

T: What are you thinking about marijuana at this point?

C: Actually I wasn't thinking about it at all. I was thinking about my girlfriend. (FN)

... but yeah, I guess I'm smoking too much for my own good (+).

At least she says so and she wants me to quit (FN).

I don't want to break up with her (R+).

I think it's messing me up at school, too. (R+)

Remember that it is also possible to have positive and negative responses within the same turn, reflecting ambivalence (such as R+ R- N+).

D. 4. f. 1. Decision Rule for Follow/Neutral and other codes : Client language that does not fit other available categories should be coded as FN. Inaudible or incomprehensible utterances should not be coded.

D. 4. f. 2. Decision Rule for Coding client facilitating language: Facilitative language that has the sense of "I'm listening" or "keep talking" is not coded. Neutral client language that occurs in response to a question is typically coded as F/N. Client language that occurs in response to a question about the TBC is coded as change talk (see sect. B.4. c. 2).

T: We'll be meeting four times during the next sixteen weeks.

C: Yeah (not coded)

T: Has your husband been supportive of you in the past?

C: Uh huh (FN)

T: If you could push a button that would make you stop drinking, would you do it?

C: Uh huh (O+, hypothetical change)

Rating the Strength of Client Language (Optional). Every time Reason, Other, Commitment and Telling Steps are coded, a strength rating may be assigned: High, Medium or Low. It is important to note that ratings for strength require coders to make artificial decisions along a continuum of intensity. There are no "natural" categories of language intensity, so making High, Medium and Low designations may be less precise (and more frustrating) than other tasks in the coding system. Examples of strength ratings for each code are given below.

Reason: High

*I definitely can't afford to get another DHT (R-)
I'll go back to jail (I have another positive urine (R-)
If I lose one more paycheck at the track, my husband will divorce me (R+)
I hate the way my clothes smell (R-)*

*There's no way I'd check my blood sugar three times a day because I'd be a
lunatic punchlines (R-)
It's the only way I can deal with the stress of my job (R-)
Sobriety just sucks most of the time (R-)*

Reason: Medium

*It's embarrassing to remember what I did that night (R+)
The racinos are starting to pick up (R+)
If I go to the casino again, my husband would probably leave me (R-)
It's the right thing to do (R+)*

*I can never find that machine when I have the time to test my blood sugar (R-)
My cigarettes are like a good friend (R-)*

Reason: Low

*I guess I'd be healthier if I exercised (R+)
It's some like the right thing to do (R+)
It's cramping my style (R+)*

*Well, it helps me to relax a little (R-)
I'd kind of miss my friends at the racino (R-)
It's sort of nice to just eat whatever I want (R-)*

Subcodes for Reason:

Reason: High

*I want to get off drugs for good (Rd+)
I'd love to be able to control my diabetes (Rd+)
I really wish I could just cut down (Rd+)*

*I don't want to quit (Rd-)
I like my life the way it is (Rd-)*

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desire: Medium

I wish I could just snap my fingers and lose 10 pounds (Rd-)

I just want to wake up sober in the morning (Rd-)

I like smoking (Rd-)

What's wrong with a little nightcap every now and then? (Rd-)

desire: Low

I guess I'd like to smoke less (Rd-)

I sort of wish I hadn't started using coke (Rd-)

It would be kind of nice to have the extra money (Rd+)

There's a few good things about it (Rd-)

I'm pretty much enjoying things the way they are (Rd-)

I guess I'm not very motivated to exercise (Rd-)

ability: High

I'm positive I can quit (Ra+)
I can do it: I just have to stick to it (Ra+)
I can quit whenever I want (Ra+)
Once I make up my mind, I do it (Ra+)

I just can't keep the weight off (Ra-)
There's no way I could make it through the day without a cigarette (Ra-)
I don't have a snowball's chance in hell (Ra-)

ability: Medium

I think I can (Ra+)
Pretty much, yes (Ra+)
I could (Ra+)

I don't think I can (Ra-)
Probably not (Ra-)
I don't have it in me (Ra-)

ability: Low

I might be able to (Ra+)
I guess I could (Ra+)

need: High

I definitely have to get off the street and this is the way to do it (Rat+)

I absolutely have to lose weight (Rn-)

I've got to use a condom every single time I have sex, no question about it (Rat+)

I need my pain pills and that's all there is to it (Rat-)

Cigarettes are the only thing keeping me going (Rn-)

need: Medium

Probably, I need to do something about my drinking (Rn1)

A change would be a good idea (Rat+)

Mostly, I have to drink (Rat-)

I guess I need some excitement in my life (Rn-)

need: Low

I sort of have to drink right now (Rn-)

I guess I don't think I need to quit (Rn-)

Other: High

I've had it with this way of living (O+)

I imagine my liver must be saying, Thank God! (C+)

I'm no teetotaler! (O-)

I'm one of the hopeless ones they talk about in the Big Book (O)

Other: Medium

I feel good about what I've accomplished (O+)

I realize now that all that drinking was wrong (O+)

AA gives me a lot of hope (O+)

If not know, when? (C+)

I keep asking myself: when are the benefits gonna show up? (O-)

Other: Low

I think that will motivate me to quit (O+)

If I could just be on a desert island for a month, I could quit (O-)

The court asked me to come to treatment, but that's probably not such a bad idea (O-)

I'm kind of questioning my behavior (O-)

E. MISC Summary Scores

As with MISC 1.0, MISC 2.1 provides several summary scores based upon the second-pass behavior codes. These are recommended as provisional summary indicators of the quality of motivational interviewing.

Ratio of Reflections to Questions (R/Q)

R/Q is the ratio of the total number of Reflect responses to the total number of Questions asked.

Percent Open Questions (%OQ)

%OQ is a percentage in which the numerator is the number of Open Questions asked and the denominator is the total number of Questions asked (Open + Closed).

Percent Complex Reflections (%CR)

%CR is a ratio in which the numerator is the number of complex reflections and the denominator is the total number of Reflections.

MI Consistent Responses (MICO)

MICO responses are those directly prescribed (e.g., affirmation, emphasizing client control, reflection, refraining) in *Motivational Interviewing* (Miller & Rollnick, 1991, 2002). The MICO score is the sum of:

- Advise with permission
- Affirm
- Emphasize Control
- Open Question
- Reflect
- Reframe
- Support

MI-Inconsistent Responses (MIIN)

MIIN are those directly proscribed (e.g., giving advice without permission, confronting, directing, warning) in *Motivational Interviewing*. The MIIN score is the sum of:

- Advise without permission
- Confront
- Direct
- Raise Concern without permission
- Warn

Percent MI-Consistent Responses (%MIC)

%MIC is a percentage in which the numerator is the number of MICO responses, and the denominator is the sum of the MICO and MIIN responses.

Percent Client Change Talk (%CCT)

%CCT is a ratio in which the numerator is the number of all client commitment language (+) divided by the sum of client commitment language plus client negative commitment (-) responses.

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