**Designing an Instrument for Measuring Motivational Interviewing Skills Acquisition in Healthcare Professional Trainees**

by

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Abstract

Motivational interviewing (MI), as a counseling approach, has been used and evaluated extensively in the last decade. This approach has a significant impact on addiction management, change in lifestyle, and adherence to treatment. Knowing that adherence behavior has a complex nature and that motivational interviewing can address those complexities, proper training, and evaluation of such training is important.

The purpose of this research project was to develop a valid, reliable, brief, and effective assessment tool for assessing mastery of MI skills in health care provider trainees attending training in MI. To address this purpose, specific steps were followed: developing conceptual and operational definitions; selecting a scaling technique; selecting a response format and developing directions for responding; preparing drafts of the instrument and conducting reviews of items; preparing a final draft of the instrument; analyzing internal consistency; inter-rater and test-retest reliability; and preparing a manual and examples of MI adherent and non-adherent behaviors.

The validity and reliability of the instrument were established. Face and content validity were assured with well defined conceptual and operational definitions of the domain of the investigation. Reliability was established through internal consistency, inter-rater reliability, and test-retest reliability. The developed instrument is based on an analytic rubric. It is shorter and less time consuming in comparison to already existing instruments. The instrument evaluates the health care provider's contribution to the interaction, but does not focus on how the patient contributes to the interaction.

Several items in the Motivational Interviewing Skills for Health Care Encounters (MISHCE) are specifically reflective of the use of MI in health care encounters. These items have added to the uniqueness of the MISHCE and emphasize its specificity in evaluation of MI skills in health care encounters. The MISHCE is also unique in that while it evaluates the health care provider's skills and knowledge, it also has an item that evaluates the "flow" of the interaction. The MISHCE can be used in training and supervision.

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# Introduction

## Purpose

There are several existing instruments that measure knowledge and skills acquisition in motivational interviewing (MI). Revising existing instruments or developing new instruments that would measure the skills and *spirit of MI* accurately is challenging. Development of instruments requires much knowledge about the measured concept and knowledge in the process of instrument development. The purpose of this research project was to create an instrument that measures skills and knowledge in MI that is less complex than existing instruments, less time consuming, more cost effective, and is appropriate for use with health care providers who are trainees in MI. The goal of this research project was to develop a valid, reliable, brief, and effective assessment tool for assessing mastery of MI skills in health care provider trainees attending training in MI. There is hope that the developed assessment tool will be used in future research on the effectiveness of brief MI training in acquisition of MI skills and principles, as well as in future evaluation of performance of MI trainees.

## Background of Motivational Interviewing

**Motivational Interviewing from a theoretical standpoint.** Motivational interviewing is based on the person-centered approach of helping. The person-centered approach of helping people comes from humanistic psychology. Its principles were posed by Carl Rogers. Motivational interviewing also incorporates elements from social psychology, applying processes like attribution, cognitive dissonance, and self efficacy. Motivational interviewing has

a parallel path of development with the transtheoretical model of change, such that the transtheoretical model provides a framework of understanding the change process itself, and MI provides the means to facilitate that process (Britt, Hudson, & Blampied, 2004). One of the MI principles, *developing discrepancy*, is related to the principles of *cognitive dissonance*. MI strategies help resolve ambivalence by creating dissonance in the patient. Some of the MI strategies such as *reflections* and *summarizing* are used to elicit cognitive dissonance. With the help of MI, the patient can choose to resolve the dissonance in the direction of behavioral change. Another important principle in MI is *supporting self efficacy*. The concept of self-efficacy was first elaborated by Bandura (Britt et al., 2004). According to Bandura, "the degree to which an individual develops the expectancy that they will be able to perform desired behaviors (i.e. self-efficacy) is an important factor in behavior change" (Britt et al., 2004, p.150). In MI, the provider supports the patient's self-efficacy by encouraging the patient in his/her ability to change his/her behavior. The Theory of Reasoned Action, Social Cognitive Theory, Decisional Balance, Health Belief Model, Self-Determination Theory, Self-Regulatory Model and Locus of Control are some of the theories and models to which MI relates. These theories and models share three common constructs with MI: the patient's expectation about the consequences of engaging in the behavior, the influence of the patient's perception or beliefs about those expectations, and the patient's personal locus of control over that behavior (Britt et al., 2004).

  **Motivational Interviewing as an approach.** Miller and Rollnick, the founders of MI, define the technique as a "Person-centered directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence" (Miller & Rollnick, 2002, p. 25). A more recent definition described MI as "a collaborative, person-centered form of guiding to elicit and

strengthen motivation for change" (Miller & Rollnick, 2009, p. 137). As the authors point out, this approach has the purpose of exploring the patient's understanding of the illness and concerns, to determine the patient's readiness to change. One of the core premises of MI is that the provider needs to explore ambivalence (one of the main barriers that affect motivation and readiness to change behavior) so he/she is able to stimulate the patient's internal motivation and individual resources for change (Possidente, Bucci, & McClain, 2005).

Miller and Rollnick (2002) developed a clinical method and style of counseling for assessing patient's readiness to change. They named it Motivational Interviewing (MI). The term "*motivational*" was chosen because motivation is the underlying concept for behavioral change and "*interviewing*" refers to the way in which the patient and the provider work together, wherein the provider interviews the patient in a caring, nonjudgmental, open-ended manner to help him/her to get to the internal motivation s/he already has, and establishing a cooperative relationship. In MI, the focus is on the patient's concerns and problems. The provider in this process shows respect for the patient's autonomy, by respecting his/her decisions and concepts regarding health (Possidente et al., 2005).

Though the MI approach is person-centered, it is more directive than nondirective. The provider guides the patient towards change using different strategies (Miller & Rollnick, 2002). Motivational interviewing (MI) addresses ambivalence and resistance by using five principles and a variety of strategies. Its five principles can be described with the acronym READS: roll with resistance, express empathy, avoid argumentation, develop discrepancy, and support-self efficacy (Emmons & Rollnick, 2001; & Possidente et al., 2005). Rollnick, Heather, and Bell (1992) identify the following MI microskills: open-ended questions, reflective listening, summarizing, and affirmation. These microskills are used during the interview; however, the

way in which they are used depends on the specific MI strategy utilized (Rollnick et al., 1992). A menu of MI strategies is defined, based on the five principles, to determine the patient's understanding of the illness, the treatment plan, and how therapy fits with treatment goals (Villaume, Berger, & Barker, 2006). Rollnick and colleagues (1992) identify the following MI strategies: talking about the person's current lifestyle, stresses and unhealthy behavior; an inquiry about healthy and unhealthy behavior; a typical day; the good things and the less good things; providing information; the future and the present; exploring concerns; and helping with decision-making (Rollnick et al., 1992).

Originally, MI was developed as a counseling style employed by psychotherapists in counseling patients with addiction problems (Lane et al., 2005). During the counseling sessions, the counselor uses specific strategies and microskills not only to understand the patient's perspective, but also to strategically elicit "change talk" from the patient and to "develop discrepancy" in the patient. Guided by five general principles of MI, and using different strategies and microskills, the counselor elicits behavioral change. Motivational interviewing has also been used for brief interventions in the health care setting with the same purpose, to elicit behavioral change in patients. In health care settings, MI is adapted based on the type of the interaction between the health care provider and the patient. Brief MI is different from traditional counseling. Traditional counseling is characterized by several 50-minute sessions. Brief MI is characterized by one or a few encounters, each lasting 5 to 10 minutes. Some of the strategies used in MI counseling are not as applicable for brief MI interventions in health care settings. Understanding the patient's perspective is the central piece in the process. Eliciting change, while an important final goal, is not the primary focus of the brief interaction. Rather, the focus is on how the patient feels at the moment (Corcoran, 2005; Emmons & Rollnick, 2001).

Knowing all this, developing an instrument to measure acquisition of MI skills in health care trainees is challenging. The framework of the instrument developed in this study was based on the MI concepts. Certain benchmarks provided the rationale behind the format that the instrument took. First, the MI principles and strategies vary in their complexity. Some can be communicated easier than others, and some are more complex and require more knowledge and skills to master. Second, the length of the interpersonal interaction can also pose a challenge. With time-limited interactions, such as in health care settings, the provider may need to quickly assess what specific MI skills to use, depending on the need and readiness of the patient. Therefore, within a brief period of time, the provider may not demonstrate all MI skills and yet may be considered appropriate and effective. Third, developing an instrument based on a mock interaction, where the patient is a trained and standardized patient and the provider is a trainee in MI, poses a different set of challenges when it comes to demonstrating MI skills. Mock interactions are more rehearsed, and the behaviors of the patient and provider are more predictable because the interview has a predetermined structure. And fourth, achieving behavioral change is a complex process; eliciting change can be challenging for professionals from different clinical backgrounds, orientations, and knowledge in human behavior. The MI approach is more than a strategy, technique, or skill; it requires the incorporation of all of these, along with an emphasis on the patient's perspective toward change (Emmons & Rollnick, 2001).

**The spirit and skills of Motivational Interviewing.** Miller and Rollnick (the originators of MI) have emphasized the importance of collaboration between the therapist and the patient as essential in MI (Moyers, Miller & Hendrickson, 2005). Collaborating with the patient and honoring the patient's experience and perspective, trusting that the resources and motivation for change are within the patient, and believing that the patient has the right to make

informed choices are all elements that embody the *spirit of MI*. Empirical evidence links the

working alliance or therapeutic relationship to better outcomes in any counseling/helping

approach (Moyers, Miller, et al., 2005; Miller & Rose, 2009). A strong working alliance is

created when the therapist is warm, accepting, attentive, collaborative, and empathic, and does

not provoke power struggles with the patient. Moyers and colleagues commented on the

assertion of Miller and Rollnick (2002) that knowledge in and mastery of MI skills is just as

important as high levels of therapist interpersonal skills being present in the interaction (Moyers,

Miller, et al., 2005).

Effective training in MI prepares providers to better interact with patients and help them

decide to reach their treatment goals. Assuming that all training interventions in MI have the goal

to train helping professions providers in basic MI principles and to exhibit the *spirit of MI*, it is

very important to have a well developed assessment instrument that would measure the level at

which individuals trained in MI exhibit proficiency in using the skills. The literature on MI also

emphasizes that evaluation of such a complex intervention requires deeper focus on training

providers in skills that are reliably measured instead of just focusing on conducting controlled

trials that primarily investigate the treatment outcome (Lane et al., 2005).

**Significance of Motivational Interviewing.** Motivational interviewing, as a counseling

approach, has been used and evaluated extensively in the last decade, both nationally and

internationally. Research done in this area demonstrates a significant impact of this approach on

addiction management, change in lifestyle, and adherence to treatment (Rubak, Sandbæk,

Lauritzen, Borch-Johnsen, & Christensen, 2006).

Adherence to prescribed or suggested medications, therapy, or lifestyle changes have

often been utilized as the primary determinants of the effectiveness of medical treatment and

have remained a focus of research in the last forty years. Health, behavioral, and social scientists have tried to identify the variables behind poor adherence, as well as possible interventions for improving adherence. Evidence suggests that human factors are as important as health care provider and health system determinants. Adherence is highly related to a person's need to engage in a certain therapy, course of treatment, or specific health behaviors (World Health Organization [WHO], 2003).

Adherence optimizes clinical benefits and increases the effectiveness of the intervention not only for primary prevention and risk-reduction intervention, but also for promotion of healthy life styles such as diet modification, increase in physical activity, smoking cessation, and safe sexual behaviors. Adherence also has an effect on secondary prevention and disease treatment interventions (WHO, 2003). Adherence rates for prescribed medications are in the range of 40-50%, with variations depending on type of medication and nature of the disease. Possidente and colleagues (2005) cite that research done to evaluate the adherence rate for 10 different diseases is in the range between 51%-80% (Possidente et al, 2005). Different behavioral approaches can be used to improve medication adherence. It has been demonstrated that MI significantly improves adherence in patients. Systematic review and meta-analysis of randomized controlled trials about the effectiveness of MI in patient behavioral changes demonstrates effectiveness in 74% (53/72) of the randomized controlled studies (Rubak, Sandbæk, Lauritzen, & Christensen, 2005).

**Current Instruments**

The importance of developing a reliable and valid assessment instrument that would measure acquisition of knowledge and skills in MI has been emphasized in the last several years (Lane et al., 2005). The literature identifies a variety of instruments that measure the patient-

provider relationship, but there are not many instruments that measure the main principles and strategies of MI. There is a lack of instruments that measure the acquisition of MI skills in health care provider trainees. The following instruments were found in the literature.

One instrument available to measure MI skills is the Motivational Interviewing Skill Code -MISC (Miller, Moyers, Ernst & Amrhein, 2003). MISC was originally developed as a coding system to evaluate specific concepts during MI sessions between the counselor and the client in a psychotherapy session. MISC consists of three phases or "passes" in each analysis of interaction between the patient and the counselor. Madson and Campbell (2006) cite the following intra-class correlation coefficients (ICC): 0.39 for the therapist scale, 0.53 for the client scale, 0.51 for the interaction scale, 0.25 to 0.79 for the MISC global items and 0 to 1.00 for the behavioral counts (Madson & Campbell, 2006). According to Cicchetti's categorization system of ICC, the ICC value range for the behavioral counts is very broad with ICC values ranging from poor to excellent (Cicchetti, 1994). Similarly, the ICC values for the global items range from poor to excellent. Literature emphasizes the significance and importance of MISC as one of the first assessment tools developed for measuring MI skills and knowledge, as well as a solid reference for development of other instruments for measuring MI. MISC serves well for the purpose that it was developed for – to investigate the interaction as a process and how the elements of MI influence the interaction (Madson & Campbell, 2006) in a patient counseling encounter.

Even though MISC is one of the first instruments to measure MI and is well developed, the literature is critical of the length of the instrument. Furthermore, the evaluation process in MISC is adequate for counseling sessions, but not for brief counseling interventions. Another concern regarding the MISC process is that having three passes in the evaluation process can

reduce inter-rater reliability (Lane et al., 2005). Complexity and cost are two other disadvantages of MISC. After the first version of this instrument, Miller and colleagues (2003), created two other versions (MISC 2.0 and MISC 2.1) with the intent to improve upon the first one and develop a new instrument that would be more reliable, valid, and efficient.

The need for an instrument that would be more "condensed", "reliable" and "economical" for evaluating clinician competence in MI contributed to the development of the Motivational Interviewing Treatment Integrity Scale (MITI) (Moyers, Martin, Manuel, Hendrickson & Miller, 2005, p. 21). MITI, as compared to MISC, measures only the interviewer's behavior and has only one pass instead of three passes (Moyers, Martin, Manuel & Miller, 2003). MITI has two components: the global score and behavior counts. The global score captures the rater's global impression of two main dimensions—empathy and *spirit of MI* (Moyers, Martin, et al., 2005). There are four behavioral counts: MI adherence, MI Non-adherence, questions, and reflections (Mounsey, Bovbjerg, White, & Gazevood, 2006). Inter-rater reliability was calculated using an intra-class correlation coefficient (ICC). ICCs of the global ratings were 0.51 for empathy/understanding and 0.58 for *spirit of MI*. The ICC values for empathy/understanding and for the *spirit of MI* are fair according to Cicchetti's categorization system (Cicchetti, 1994). However, the ICC values for the behavioral counts ranged from fair to excellent. The ICCs for the behavioral counts were from 0.57 to 0.96 (Madson & Campbell, 2006).

MITI has a less comprehensive coding system than MISC. MITI has only one pass compared with MISC, which has three passes and that should decrease the complexity and cost of this assessment tool as well as improve the inter-rater reliability. Although MITI assesses use of empathy and MI microskills, it does not measure complex processes in MI such as "change

talk". Another consideration for this assessment tool is that the reliability coefficients for the two global items, empathy/understanding and the *spirit of MI*, are fair in terms of clinical significance (Madson & Campbell, 2006).

Another instrument is the Behavioral Change Counseling Index - BECCI (Lane et al., 2005). The BECCI is an instrument developed to measure Behavioral Change Counseling, an approach adapted from MI. The need for an instrument that can measure behavior change skills, especially in the health care setting, and can be scored easily, led to the development of this assessment tool. This assessment instrument is more focused on the practitioner's consulting behavior and attitude, instead of the responses of the patient. Items are divided in the following categories: agenda setting and permission seeking; the "how" and "why" of change in behavior; the consultation as a whole; and talk about target (Lane et al., 2005). Reliability was examined through internal consistency, inter-rater and test-retest reliability. When internal consistency was examined, the mean inter-item correlation in the core item analysis was 0.22 for the baseline consultations and 0.14 for the final consultations. The inter-item correlation values indicate low internal consistency. Cronbach's Alpha for the baseline consultations was $\alpha = 0.71$ and $\alpha = 0.63$ for the final consultations. BECCI demonstrated a good level of inter-rater reliability and moderate to good level of intra-rater reliability. (Lane et al., 2005).

The sensitivity of BECCI to change, both before and after training, was high, which led to the conclusion that BECCI could detect change in practitioner performance before and after training in Behavioral Change Counseling (Lane et al., 2005). The authors imply that because BECCI has been tested for validity and reliability only on simulated consultations, it may not be reliable in real consultations. Another remark from the authors is that BECCI focuses purely on practitioner behavior rather than patient behavior (Lane et al., 2005).

Another assessment instrument developed to evaluate the MI competence of social workers who work with patients with substance abuse problems is the Motivational Interviewing Process Code –MIPC (Barsky & Coleman., 2001). MIPC measures only the interviewer's behavior. MIPC consists of two parts: listening and evaluating functional skills and listening and evaluating dysfunctional skills. The inter-rater reliability of the MIPC was established through an analysis of the percentage of agreement between raters for the functional skills subscale, 51.27%, and the dysfunctional skills subscale, 75.03% (Madson & Campbell, 2006). While the dysfunctional skills subscale inter-rater agreement was within acceptable range, the functional skills subscale inter-rater agreement was considerably lower than recommended. According to the creators of this instrument, MIPC is less time consuming because it requires reviewing the brief interaction only once (Barsky & Coleman, 2001). Although this measure was intended to evaluate skill acquisition, it assesses MI adherence more than the quality of MI (Barsky & Coleman, 2001).

The Motivational Interviewing Supervision and Training Scale - MISTS (Madson, Campbell, Barrett, Brondino, and Melchert, 2005) was developed to assess information similar to that assessed by the MISC, but was targeted for use in either clinical or research settings. The MISTS evaluates behavioral counts of skills consistent with MI as well as the quality of the intervention. The quality of the intervention, MI fidelity, and effectiveness of therapist intervention were evaluated with a 16-item global scale. The authors achieved inter-rater reliability using the generalizability theory. The overall generalizability coefficient was 0.79, and was considered excellent (Madson et al., 2005). The MISTS has been found to be appropriate for use in training, supervision, and research settings; however, the authors suggest that the reliability and validity of the instrument should be further evaluated. The instrument needs to be

validated for use in samples and settings other than those related to treatment of substance abuse (Madson et al., 2005).

Although there are already existing assessment tools for measuring acquisition of knowledge and skills in MI, revising existing assessment tools, developing a shorter or a new assessment tool that would measure skills accurately, are all challenges for researchers. The literature emphasizes that the majority of the existing instruments are developed to measure the psychometric properties from a theoretical standpoint. During the process of developing an assessment tool, the researcher needs to consider validity and reliability from the beginning of the instrument development (Leong & Austin, 2006).

**Significance of the Development of a New Assessment Tool**

Knowing that adherence behavior has a complex, multidimensional nature and that motivational interviewing can address those complexities, proper training, and evaluation of such training, is very important (Adamian, Golin, Shain, & DeVellis, 2004). Because health care providers have less time interacting with patients, brief health care provider-patient encounters require appropriate knowledge and skills in MI for effective time management. Lane and colleagues (2005) emphasize the need for training health care providers in skills that are reliably measured instead of conducting controlled trials that primarily look at patient outcome (Lane et al., 2005). Good training in MI, as well as mastering MI skills, is crucial for increasing the outcome of treatment. Assuming that all training interventions in MI have the goal to train health care professionals in basic MI principles and skills, it is very important to have a well-developed assessment instrument for measurement of MI skills acquisition.

The above described assessment tools were more focused on skills assessment and less focused on the evaluation of the interaction between the patient and the provider. The goal of this

research project was to develop an assessment tool that would evaluate acquisition and use of specific MI skills and MI principles, as well as evaluate the interpersonal interaction or the quality of the patient-provider therapeutic alliance in brief health care encounters. Process evaluation provides data not only related to skills acquisition, but also illuminates important aspects of the process or delivery of the intervention as well (Emmons & Rollnick, 2001). Process evaluation addresses questions not only of MI competence, but it also focuses on whether there is a flow to the interaction and the strategies utilized. The advantages and disadvantages of the existing assessment tools were considered during the process of instrument development. The developed assessment tool also evaluates one aspect of the process in the interpersonal interaction. The instrument is designed to specifically evaluate health care providers trained in MI whose work is focused on comprehensive disease management and improvement of clinical outcomes.

The validity and reliability of the instrument were established. The validity and reliability of the instrument depended on how well the items were written and how well they represented the construct under investigation. Two types of validity were established. Face and content validity were supported with well defined conceptual and operational definitions of the domain of the investigation. Reliability was established through internal consistency, inter-rater reliability and test-retest reliability. The developed instrument is based on a rating scale, more specifically, an analytic rubric. It is shorter and less time consuming in comparison to already existing instruments. Each item measures only one concept. Language used in the instrument is based on the existing literature in MI. Finally, the instrument evaluates the health care provider's contribution to the interaction, but does not focus on how the patient contributes to the interaction.

**Research Questions**

As indicated above, the purpose of this study was to create a valid and reliable theory-based assessment tool that accurately measures acquisition of MI skills, and is practical for use. In this research study, the following research questions were addressed:

Q1: Will claims for face and content validity of the MISHCE be supported through expert panel consensus?

Q2: Will the overall internal consistency reliability coefficient of MISHCE be in the acceptable range?

Q3: Will the internal consistency reliability coefficients per domain vary?

Q4: Will the inter-rater reliability coefficients for each item be in the good to excellent range?

Q5: Will the five raters demonstrate test-retest reliability when using the MISHCE?

## Literature Review

**Origins of Motivational Interviewing**

The founders of Motivational Interviewing, Miller and Rollnick (2002), developed a clinical method and style of counseling for guiding patients toward increased motivation to change. They named it motivational interviewing - *motivational* because motivation is the underlying concept for behavioral change, and *interviewing* because the patient and the health care provider work together to examine events and to establish a collaborative relationship (Possidente et al., 2005). In MI, the focus is on the patient's concerns and problems. The health care provider shows respect for the patient's autonomy by respecting the patient's decisions and ideas about health (Possidente et al., 2005).

Miller and Rollnick (2002) define MI as a "Person-centered directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence" (Miller & Rollnick, 2002, p. 25). A more recent definition described MI as "a collaborative, person-centered form of guiding to elicit and strengthen motivation for change" (Miller & Rollnick, 2009, p. 137). As the authors indicate, the purpose of this approach is to explore the patient's understanding and concerns and to determine the patient's readiness to change. One of the core premises of MI is that the health care provider needs to explore ambivalence (the conflict between positive and negative feelings about changing an unhealthy behavior or adopting a healthy behavior) so s/he is able to stimulate the patient's internal motivation and individual resources for change (Possidente et al., 2005).

Historically, the application of MI as a helping approach emerged in counseling and psychotherapy. More specifically, MI proved to be a powerful tool in the treatment of individuals with substance abuse and dependence. However, the use of MI has expanded, becoming a valuable approach in helping individuals with a variety of concerns including smoking cessation and weight loss. Similarly, the health care field has adopted this approach in helping patients change behaviors and lifestyles to improve their physical health and manage their diagnoses. The application of MI in health care and its effects on the improvement of medication and treatment adherence and lifestyle change will be described in detail below.

**The Person-Centered Approach**

MI is based on the *person-centered* approach to helping. To understand the basic principles of MI, there is a need to understand the person-centered approach and how human nature and change is seen through this approach. The person-centered approach stems from humanistic psychology. Its principles were created by Carl Rogers.

The basic principles of the person-centered approach are founded on the belief that people are trustworthy, resourceful, capable of self-understanding, and capable of making constructive changes to live productive and effective lives. Changes in a patient are most likely to occur when the provider is genuine, caring, empathic and nonjudgmental. According to Rogers, three specific provider attributes allow for a growth-promoting climate in which individuals move forward and reach their full potential: congruence, unconditional positive regard, and accurate empathic understanding (Corey, 2001). The congruent provider is real and genuine. The person-centered provider offers acceptance and strives to deeply understand the unique and subjective experiences of the patient. The patient-provider relationship is egalitarian. It is the patient who is the expert on his/her own life. The provider simply provides guidance

through active listening, probing, reflecting, paraphrasing, and conveying his/her acceptance of the patient. The provider focuses on bringing out the strengths of the patient and encouraging the patient to live life fully and embrace his/her own strengths as well as the struggles of life (Corey, 2001).

The focus in a person-centered approach is on the present, the "here-and-now", with ties to the past and future in relation to present behavior. The focus is also on understanding the patient's feelings and inner world. It is important that the patient in the process becomes more genuine and congruent, and that his/her behaviors are in accordance with his/her feelings, beliefs, and attitudes. The focus of this approach is the individual, not the individual's problem. The goal of the approach is for the patient to be more open to experiences, to have trust in him/herself, to have an internalized self-perception, and to have a will for further growth in life (Corey, 2001).

In the person-centered approach, the provider guides the process and does not dominate it. Of central importance to this approach is the attitude of the provider rather than the techniques used by the provider. A genuine, caring, and accepting provider can serve as a role model and guide the patient toward greater self-acceptance and congruence. This approach assumes that patients seek help when they are in a state of incongruence—how they behave in the outside world does not match their inner feelings and core beliefs about self and the world. Such incongruence may lead to powerlessness, hopelessness, making destructive decisions, and feeling unfulfilled. When working with a person-centered provider, patients quickly learn that they hold the responsibility for change and growth. Change and growth occur in a safe, nonjudgmental and supportive environment. Ultimately, patients experience greater acceptance of self and others. They become less concerned with behaving the way others want them to, and become more fulfilled (Corey, 2001).

Such changes are not possible without a solid relationship between the provider and the patient. According to Rogers, for change to occur in the patient, the following conditions are necessary: the patient comes for help because of experiencing anxiety and incongruence; the provider is already congruent; the provider conveys unconditional love and acceptance to the patient; and the provider experiences and conveys accurate empathy toward the patient's inner experience (Corey, 2001). A congruent provider is not disingenuous, meaning the outer behavior and inner feelings of the provider match. The provider acknowledges that the patient has personal values, beliefs, and feelings. There is no label for those as good or bad; they simply are the patient's feelings, attitudes, and beliefs. The focus of the person-centered approach is not to judge the patient's behavior, but to help the patient accept his/her own behavior, values, and beliefs. In the interaction with the patient, the provider wants to understand and to communicate the understanding of the patient's salient inner experiences as accurately as possible (Corey, 2001). The person-centered approach reduces resistance in the patient and increases the patient's readiness to change. This approach is helpful and has a significant effect when working with patients who are ambivalent toward change.

**Motivational Interviewing and Person-Centered Theory**

One of the similarities between MI and the Person-Centered theory is that central importance is given to the patient. The main difference between the two approaches is that MI is a directive or guided approach, while the person-centered approach is a non-directive. In MI, the interviewer has a rationale, uses strategies and skills to follow that rationale, and has a good sense of intervening in specific ways at the appropriate time (Miller & Rollnick, 2002). In the person-centered approach, the provider allows the patient to determine the flow and the content of the helping interaction. In MI, the interviewer "systematically directs" the patient's access to

his/her motivation for change, offers his/her advice and feedback when appropriate, and develops discrepancy in the patient with the purpose of enhancing motivation for change (Miller & Rollnick, 2002). Empathy, supporting the patient's self-efficacy and provider genuineness are three key elements shared by both MI and the Person-Centered theory, and are necessary in the interviewing process.

**Links with Other Theories**

MI as an approach is also associated with the Stages of Change model. This model was introduced by Prochaska and DiClemente (1982). The model proposes that changes in behavior and attitudes do not happen immediately, but are a process. People pass through several stages of motivational and behavioral readiness for change, and each stage is differentiated from the other by the unique processes occurring within. The process of change involves all strategies and techniques that can help the patient to modify his/her thinking, feelings, or behaviors with one purpose, to progress through the stages of change. To be successful in this process, the provider first identifies the individual's stage of change and then uses specific strategies to help the patient move along the change continuum (Astroth, Cross-Poline, Stach, Tilliss, & Annan, 2002). There are five stages in the Stages of Change model: precontemplation, contemplation, preparation, action, and maintenance. The patient's level of motivation is different in each of the stages. The goal is to move the patient toward those stages where the patient's motivation is greater. Motivational interviewing has links with the stages of change model, such that this model provides a framework for understanding the change process itself while MI provides a means of facilitating that process (Britt et al., 2004).

MI also has links with the Theory of Reasoned Action, Social Cognitive Theory, Decisional Balance, Health Belief Model, Self-Determination Theory, Self-Regulatory Model,

and Locus of Control. These theories and models share three common concepts with MI: the patient's expectation about the consequences of engaging in the behavior, the influence of the patient's perception or beliefs about that, and the patient's personal locus of control over that behavior (Britt et al., 2004). MI also uses concepts such as Bandura's Self-Efficacy (1992), Festinger's Cognitive Dissonance (1957), and Cost-Benefit Analysis. The individual engages in internal cost-benefit analysis when he/she starts weighing the perceived benefits (when the individual recognizes that that the recommended treatment or change of behavior is feasible and will be efficacious) and the perceived barriers (when the individual recognizes that the recommended treatment or change of behavior is costly, dangerous, time-consuming, has side effects, etc.). The individual engages in evaluating whether the benefits outweigh the costs or vice versa (Edberg, 2010).

**Motivational Interviewing Principles**

MI addresses ambivalence and resistance by using five principles and a variety of strategies. Its five principles can be described with the acronym READS: roll with resistance, express empathy, avoid argumentation, develop discrepancy, and support-self efficacy (Emmons & Rollnick, 2001; & Possidente et al., 2005).

The first principle of MI illustrates the spirit of the interaction between the patient and the provider, suggesting that the provider is *"rolling" with the patient's resistance*, meaning, his/her style is not confrontational or argumentative. The provider moves with the patient in whichever direction the patient is ready to move (Miller & Rollnick, 2002). There are two types of resistance: issue based—a specific issue of the patient that leads to non-adherence or unhealthy behaviors; and relational-resulting from loss of face and when the patient feels misunderstood and/or manipulated. For "rolling with resistance" to occur, the patient must somehow

demonstrate resistance, while the provider addresses that resistance in a non-confrontational manner (Villaume, 2009).

Expressing empathy is another MI principle. Carl Rogers describes empathy as the provider's ability to "enter the patient's phenomenal world, to experience the patient's world as if it were your own without ever losing the 'as if' quality" (Rogers, 1967 as cited in Gladding, 2003, p.136). Squier (1990) described the concept of empathy in the health care setting. He suggests that in the initial stage of the interaction, the health care provider tries to understand both cognitively (perspective taking) and affectively (emotional reactivity) how the patient is experiencing his/her condition. During the initial phase, the health care provider communicates empathically with the patient, using verbal and nonverbal empathy. If the health care provider understands the patient accurately and with empathy, and is able to communicate that understanding with the patient, there will be a positive outcome (Squier, 1990).

Often providers use sympathy instead of empathy not being aware that the two are different and can affect the patent-provider relationship differently (Hojat, 2007). Empathy should not be equated with sympathy. Empathy and sympathy have different influences on the patient's behavior, and with that, on the clinical outcome (Hojat, 2007). The difference between these two concepts is that empathy involves cognitive information processing and sympathy mainly involves affective processing. Empathy is classified as an intellectual attribute and sympathy as an emotional state of mind. To sympathize is to feel for the patient, while to empathize is to feel with the patient (Hojat, 2007).

Developing discrepancy is another MI principle. This skill is used for creating dissonance. With this skill, the provider creates a discrepancy between the patient's present behavior and his/her goals. Dissonance becomes the motivating element that moves the patient

toward change. This concept comes from Festinger (1957) and is understood as a discrepancy between where the patient is and where s/he wants to be (Miller & Rollnick, 2002). According to Festinger (1957), people have cognitive elements such as attitudes, thoughts, knowledge, ideas, values, and behaviors. These cognitive elements are "knowledge" about one's self, one's behavior, or one's surroundings. What people know or believe and what they do are in balance (Festinger, 1957).

Attitudes, thoughts, knowledge, ideas, values, and behaviors are related to each other in three different types of relationships. The first type of relationship is "null" or "irrelevant"; meaning, one cognitive element does not concern another cognitive element. The second type is "consistent" or "consonant with one element reinforcing the other. The third kind of relationship is "inconsistent" or "dissonant". In this relationship, two elements are dissonant if they do not fit together (Festinger, 1957). The experience of consonance and dissonance differs from one individual to another. Dissonance produces tension that creates pressure to change. When dissonance occurs, the individual will want to resolve it by minimizing and avoiding situations that cause dissonance. The more dissonance increases the more the individual will want to minimize it (Stiff, 1994).

The amount of dissonance experienced as one makes decisions depends on several variables. The first variable is the importance of the decision. Certain decisions that are not important are going to produce little dissonance. The second variable is freedom of choice in the decision making process. The greater the amount of freedom in making a decision, the greater the dissonance will be. A third variable is the attractiveness of the chosen alternative. When the chosen alternative is less attractive, the dissonance is greater. At the same time, when the attractiveness of the alternative that has not been chosen is greater, the person experiences more

dissonance. Lastly, when the degree of similarity or overlap between the alternatives is greater, the dissonance is smaller (Festinger, 1957). Dissonance can be elicited from logical inconsistency. A person may have two beliefs that are inconsistent with one another. Dissonance can also be elicited because of past experience. New information can also produce dissonance. When the discrepancy between a person's opinions about the new information is greater, the person's resistance to change in line with new information is stronger (Festinger, 1957).

People can reduce their dissonance by either changing their attitude and behavior to make them consistent with the new information, or completely rejecting the new information. One goal in motivational interviewing is for the patient to experience a discrepancy between his/her own current behavior and how the patient wants to be in the future. Dissonance may occur with the patient's awareness of and dissatisfaction with the unhealthy outcomes of the present behavior, and the perceived benefits of behavior change (Miller & Rollnick, 2002). MI strategies stimulate the patient to resolve discrepancies between the present unhealthy behavior and desired healthy behavior, thus decreasing the dissonance. MI strategies target the cognitive and motivational aspects of decision making in patients (Berger, Hudmon, & Liang, 2004). Knowing that dissonance is related to the motivational and cognitive processes, and that MI targets the motivational processes of the decision maker, dissonance is necessary for increasing the probability of behavior change (Miller & Rollnick, 2002).

*Avoid argumentation* is another principle of MI. Direct argumentation can increase resistance to change. In the interaction with the patient, the provider should be aware that the patient's concerns or emotions are not arguable. The challenge is greater when the patient has a confrontational or argumentative style of communication. With patients who are highly resistant or argumentative, the provider may need to use more empathy, more reflecting, more active

listening, and/or more rolling with resistance. The argumentative style of the patient is not a personal attack and is not related to the provider, but is rather the patient's way to communicate anxiety, discomfort, or threat (Berger, 2004).

*Supporting Self-efficacy* is also a key principle in the process of change. This concept emphasizes the importance of the provider encouraging the patient to make successful changes by relying on personal strengths. Believing in the patient's personal strengths and leading the patient to decide about the choices that s/he has, and carrying out the process of change helps increase self-efficacy. Taking personal responsibility for carrying the change and expecting good outcomes also leads to greater self-efficacy (Miller & Rollnick, 2002). According to Bandura (1992), accomplishing a sense of personal self-efficacy occurs when cognitive processing of efficacy information transmitted inactively, vicariously, socially, and physiologically aids self-persuasion. Self-efficacy is important in human motivation, affect, thought, and action (Schwarzer, 1992).

Self-beliefs of efficacy affect thoughts that can strengthen or weaken performance. Self-efficacy influences personal goal setting. When the perceived self-efficacy is stronger, the goals made are higher and one's commitment to them is stronger. Challenging goals often increases the level of motivation and performance skills. An individual's self-efficacy also shapes the types of anticipatory thoughts they have regarding their performance in a certain situation. For example, individuals with high self-efficacy will visualize success scenarios, while people with low self-efficacy visualize failure scenarios. High self-efficacy stimulates thoughts about successful behaviors and actions, which in turn increases self-efficacy (Bandura, 1992). Self-efficacy also plays a role in motivation. People motivate themselves by thinking ahead of time and mentally guiding themselves through successful behaviors. People form beliefs about what

they can do, they anticipate certain outcomes of their actions, they set goals for themselves, and they plan actions/behaviors to meet those goals. The strength of one's motivation is shaped by both the expectation that a certain behavior will produce an outcome as well as by the importance of that outcome (Bandura, 1992).

In summary, self-efficacy beliefs result from a process of self-persuasion that is influenced by different sources of efficacy information that the individual collects through vicarious, social and physiological experiences (Bandura, 1992). A health care provider who supports the patient's self-efficacy can aid the patient and positively affect the patient's perception and beliefs about personal abilities.

**Motivational Interviewing Microskills**

Literature describes MI as a process where the provider needs to have the understanding, knowledge, and skills to be able to affect the patient's motivation for change. It identifies several necessary skills in use of MI. One skill is *being where the patient is*, meaning, the patient's perspective is a base upon which the practitioner should build the whole interaction with the patient, including accepting the patient's standpoint, fears, frustrations, and lifestyle without prejudice. Another skill is *setting a tentative agenda*, flexible and open for change, depending on the patient's readiness for change. *Exploring and reflecting the patient's perceptions* is another step in "moving" the patient toward change. *Affirmation, positive reframing* of the patient's statements for increasing self-efficacy, *presenting a brief summary* to the patient as a confirmation for the provider's understanding toward the patient's situation, and *using phrases that can probe gently the patient's problem behavior without insulting the patient* are also skills that bring the patient closer to the desired outcome (Bell & Rollnick, 1996; Corcoran, 2005). Bell

and Rollnick (1996) refer to these skills as patient-centered counseling skills essential in the practice of MI.

**Menu of Motivational Interviewing Strategies**

Rollnick and colleagues (1992) distinguished specific MI microskills from broader strategies. The authors suggest that the use of microskills is shaped by what specific strategy is being used in one specific part of the interaction. They identify a menu of eight strategies briefly described below.

The first opening strategy involves *talking about the person's current lifestyle and sources of stress, and raising the subject of the unhealthy behavior*. This helps the interviewer understand the context in which the unhealthy behavior occurs. The second opening strategy involves a *general inquiry about the person's health and how the unhealthy behavior affects it*. The authors suggest using a question such as "How does …. affect your health?" (Rollnick, Heather, & Bell, 1992, p. 30) The *typical day* strategy encourages the person to talk about the current unhealthy behavior without pathologizing it, as well as about how to move toward healthy behavior. This gives the interviewer an opportunity to assess the person's readiness for change. *The good things and less good things* strategy can be used as an alternative to the previous strategy. It helps the interviewer in building rapport while exploring the benefits and downfalls of the unhealthy behavior. This strategy can be challenging for people who are not yet ready for change. The *providing information* strategy focuses on providing information to the person in a neutral and non-personal way, and then following up with the person regarding their thoughts about the information that was provided. *The future and the present* strategy focuses on the person's present circumstances and the way s/he would like to behave or be in the future. This strategy helps elicit discrepancy, which in turn increases motivation for change. Rollnick

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and colleagues (1992) suggest three questions to be used with this strategy: "How would you like things to be different in the future?"; "What is stopping you from doing these things you would like to do?"; and "How does …. affect you at the moment?" (Rollnick et al., 1992, p. 31). The *exploring concerns* strategy is the most important strategy because it elicits the individual's reason for being concerned about his/her unhealthy behavior. This strategy can only be used with people who are concerned about their behavior. The interviewer listens carefully to what the person is saying, and probes the person to say more about the concerns until all concerns have been covered. Then, the interviewer encourages the individual to talk about concerns s/he may have about changing the unhealthy behavior: "What concerns do you have about no longer….?" Lastly, the *helping with decision-making* strategy can only be used with people who indicate a desire to change. It is used when the person experiences conflict about ambivalence and change in mood. Thus, the interviewer uses neutral, but probing questions such as "Where does this leave you now?" or "What are you going to do now?" The interviewer has to allow the person to move back and forth between thinking about change and wanting to stay the same (Rollnick et al., 1992, p. 32). Achieving behavioral change is a complex process that challenges professionals from different clinical backgrounds. The MI approach is more than a strategy, technique or a skill. It is all of these combined, while adding the patient's perspective.

**The Helping Relationship**

The interaction between the patient and provider is of an interpersonal nature. The patient's or provider's personality traits, cultural differences, mental and physical health, and the duration of the interaction are factors that can have a significant impact on the interaction as well as how and whether the provider will express the necessary MI skills during the interaction. Both the patient and the provider enter the interaction with a set of health values and beliefs, health

knowledge, expectations about the interaction, experiences with illness, self-care, etc. These variables are shaped by culture, upbringing, previous experiences with health care providers, myths about health, and educational level, amongst others. The provider uses his knowledge and skills in MI to minimize the power differential between the patient and the provider.

Miller and Rollnick have emphasized the importance of collaboration, evocation and autonomy as essential in MI (Moyers, Miller, et al., 2005). Empathy, acceptance, genuineness, acknowledging the patient's autonomy, and an egalitarian relationship are important in the MI approach. These elements construe the *spirit of MI*. Empirical evidence links the working alliance or therapeutic relationship to better outcomes in any counseling/helping approach (Moyers, Miller, et al., 2005; Miller & Rose, 2009). A strong working alliance is created when the therapist is warm, accepting, attentive, collaborative and empathic, and does not provoke power struggles with the patient.

**Measuring Knowledge and Skills in Motivational Interviewing**

Gazda and colleagues (1999) emphasize the importance of training in the book *Human Relations Development*. If the provider has a lack of knowledge on what skills to use and how to use them, s/he can do more harm than good with the patient. That is why adequate training is needed (Gazda et al., 1999). Literature in MI also suggests that evaluation of a complex intervention such as MI requires deeper focus on training health care providers in skills that can be reliably measured (Lane et al., 2005; Madson, Loignon, & Lane, 2009). Assuming that all training interventions in MI have the same goal—to train health care professionals in basic MI principles-it is very important as in every training process, to have a well developed assessment instrument that would measure whether MI skills and knowledge have been acquired. Health care providers who are skilled in MI are more able to attempt to reinforce and elicit patient

change talk. The importance of developing a reliable and valid assessment tool to measure the appropriate application of essentials skills in MI has emerged in the last few years. A reliable and valid assessment tool would have several applications and could be used for assessing knowledge and skills in MI, training and supervision in MI, evaluating MI skills for research purposes, and assessing the interaction between the provider and the patient. To develop an instrument for measuring MI concepts and microskills, developers should have adequate knowledge of MI.

The development of an assessment tool for acquisition of helping skills and a helping approach is challenging and complex. It requires theoretical knowledge about the concepts and the helping skills that are being measured. Because the patient-provider interaction is of an interpersonal nature, the development of the assessment tool in this study also required knowledge about how interpersonal communication skills are defined and measured as well as how interpersonal communication competence is measured.

**Measuring Interpersonal Skills and Competence**

According to Spitzberg (2003), "skills are intentionally repeatable, goal-directed behaviors and behavior sequences. Skills are the actual behaviors manifested in an attempt to accomplish some goal" (Spitzberg, 2003, p. 95). Many authors suggest that interpersonal skills should be conceptualized and assessed at the behavioral level. Other authors have argued that interpersonal skills should be conceptualized and assessed at the social cognitive and interpersonal level (Spitzberg, 2003). According to Spitzberg (2003), "competence can be viewed as an evaluative judgment of the quality of a skill" (p. 97). There are several existing criteria used to operationalize competence in interpersonal communication. Dialogical criteria focus on skills such as empathy, confirmation, relaxed readiness, perspective reflection,

congruence, humor, present orientation, genuineness, and egalitarianism as necessary for being competent in interpersonal interactions. Clarity, understanding, efficiency, satisfaction, effectiveness, and appropriateness are other criteria for evaluating or determining competence in interpersonal skills (Spitzberg, 2003).

Interpersonal skills can be measured through indirect (e.g., interviews or projective techniques) and direct methods. The most commonly used direct methods are the role-play (simulated interaction) or naturalistic assessment (natural interaction), where interpersonal skills are directly observed and measured. Role-play methods have become widely used and researched as a form of assessment of skills acquisition. Social skills elicited from the role play interaction are often measured by counting and coding sequences of behaviors that are considered as relevant to competence in or mastery of the specific skill (Spitzberg, 2003). This is considered to be a molecular evaluation of skills. The molecular evaluation is then accompanied by a molar evaluation of skills or the person's overall performance or competence in the interpersonal interaction.

Gallagher and Hargie (1992) emphasize the importance of obtaining molar and molecular measures to be used for assessment of provider skills. Molecular measures can be obtained by breaking each skill into a number of behavioral components and measuring the occurrence of each behavior separately. Molecular measures make the assessment very objective and reliable. The disadvantage of this kind of quantitative assessment is that it does not measure how well or appropriately the behaviors were utilized. Furthermore, this type of assessment does not offer an adequate measure of how these skills can affect the outcome of the therapy. Gallagher and Hargie (1992) further stress the importance of developing rating scales that are also molar measures. From a molar measure standpoint, the competence of the individual can be seen on a

continuum, from minimal competence to optimal competence with respect to the overall performance of the individual involved in the interpersonal interaction (Spitzberg, 2003). Many of the existing instruments assessing acquisition of and competence in MI skills use molecular evaluation, molar evaluation, or a combination of both.

**Assessment of Performance**

The purpose of this research project was to develop a measure of trainee application of skills and knowledge in MI. Because the purpose of the developed measure is to assess how well each trainee has mastered MI skills and principles and is able to accurately and effectively apply them in a mock interaction with a patient, the use of this measure after training is considered a *performance assessment.* As suggested by Rudner and Schafer (2002), performance-based assessment includes a set of strategies that are used to evaluate the application of knowledge and skills through the performance of a task meaningful to the learner. This type of assessment would provide an instructor or trainer of MI skills and principles an understanding of how the trainee understands and applies knowledge (Rudner & Schafer, 2002).

There are two types of performance-based assessment: formal and informal. In an informal assessment, the trainee would not know that his/her knowledge is being evaluated (Rudner & Schafer, 2002). For the purpose of this study, a formal performance measure was developed, as each trainee who has completed the training in MI will know that his/her knowledge and mastery of skills and principles are being evaluated through a mock interaction with a patient. Unlike other more traditional forms of testing knowledge, performance-based assessments do not focus on clear-cut right or wrong answers. What is more important is to focus on determining the degree to which a person is competent in mastering certain skills and knowledge (Rudner & Schafer, 2002).

One way of approaching this is to use *performance rubrics* (Rudner & Schafer, 2002). Rubrics are not checklists. Rubrics are rating scales that are formally defined as scoring guides, consisting of pre-established scoring criteria, used in evaluation (Mertler, 2001). Rubrics are also defined as descriptive scoring schemes that are used by an evaluator to guide the analysis of progress (Rudner & Schafer, 2002). Rubrics are one of many ways to evaluate knowledge and performance of trainees. The difference from checklists and other measures is that rubrics are based on descriptive scales. Rubrics provide two benefits in the evaluation process and "support the evaluation of the extent to which criteria have been met" (Rudner & Schafer, 2002, p. 72). They also provide feedback to trainees about how to improve their performance. Rubrics are commonly used in higher education for classroom evaluation purposes and are equally appropriate for use in English, mathematics, and science classes (Moskal, 2000).

Two types of rubrics are commonly used: holistic and analytic. With a holistic rubric, the evaluator focuses on the overall process or product as a whole. With an analytic rubric, the evaluator focuses on evaluating each individual part (skill, task, or concept) of the performance, and then sums the individual scores to obtain a total score (Mertler, 2001). Mertler (2001) suggests a template for designing an analytic rubric. In this template, the author suggests four levels of performance: beginning, developing, accomplished and exemplary. On each evaluated task, a trainee's performance would fall in one of the four levels. A qualitative description reflecting the performance on each measured task for each performance level would have to exist. For example, a beginning level of performance would require a qualitative description reflecting beginning level of performance; a developing level would require a description reflecting movement toward mastery level of performance; an accomplished level would require

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a description reflecting achievement of mastery level of performance; and an exemplary level would require a description reflecting highest level of performance (Mertler, 2001).

Each performance level is also accompanied by a quantitative score: a trainee with beginning level receives a score of 1; a trainee with developing level receives a score of 2; a trainee with accomplished level receives a score of 3; and a trainee with exemplary level of performance receives a score of 4 (Mertler, 2001). Depending on what type of feedback the evaluator wants to provide for each trainee, the scores for each evaluated task can be summed up to a total score for quantitative feedback. The qualitative descriptions for each evaluated task can be used to provide qualitative feedback.

This study was focused on developing a performance measure that uses the principle of analytic rubrics. Another way to categorize rubrics is as general or task specific (Rudner & Schafer, 2002). A rubric can be used to evaluate a specific task or a broader category of tasks. Because the developed instrument measures a specific performance (a timed interaction between a trainee who has completed the training and a mock patient), it is a task-specific measure. Rudner and Schafer (2002) suggest that an important benefit of using rubrics in evaluation is that they can provide more concrete feedback to trainees on how to improve their performance.

When creating a rubric as a performance measure, authors often use the following words or descriptors to communicate varying levels of proficiency or competency: novice, apprentice, beginning, proficient, developing, accomplished, exemplary, excellent, developed, meets expectations, adequate, needs improvement, or inadequate (Mertler, 2001; Rudner & Schafer, 2002). Because rubrics are a form of rating scale, it needs to be indicated to what degree standards were met. For that purpose, numerical scales are used, and each number is assigned to a descriptor that indicates the presence/absence and level of presence of the measured

skill/concept (Rudner & Schafer, 2002). When creating such a measure, "each score category should be defined using descriptions of the work rather than judgments about the work" (Rudner & Schafer, 2002, p. 75).

**Existing Assessment Tools**

The literature identifies a variety of instruments that evaluate the patient-provider relationship. There are also instruments that measure the main concepts and microskills of MI, but there is a lack of instrumentation to evaluate MI skills used in health care settings.

**Motivational Interviewing Skill Code (MISC).** One instrument that measures the main concepts and microskills of MI is the Motivational Interviewing Skill Code (MISC). MISC was developed in 1997 as an assessment tool for evaluation of the quality of the MI intervention. Originally, MISC was developed as a coding system to evaluate specific concepts during the MI sessions between the counselor and the client.

*Measure description.* Videotapes and audiotapes of individual counseling were used for this evaluation. As a research tool, the MISC consists of three "passes" of analysis of the interaction between the client and the counselor. In the first pass, the global counselor and client performance during the interview is evaluated. Independent coders that were trained in MI for forty hours rated the interaction. The global score represents the patient's overall impression of the counselor's performance during the interview. The counselor is rated on six dimensions: acceptance; empathy; egalitarianism; genuineness; warmth; and overall *spirit of MI*. The global score represents the "holistic evaluation of the counselor, one that cannot necessarily be separated into individual elements" (Miller et al., 2003, p. 3). In the first pass, the client is rated on four dimensions: affect, cooperation, disclosure; and engagement. The global score also

measures benefit and collaboration in the client-counselor relationship (Moyers, Martin, et al., 2005). A seven-point Likert scale is used for rating the first pass (Miller et al., 2003).

The second coding pass provides specific classification of the behaviors between the counselor and the patient during the interview. Twenty-seven behaviors are coded for the therapist. In this section, specific behaviors consistent with the MI approach are counted. *Asking for permission*, *affirmation*, *emphasize control*, and *support* are all counted as MI adherent. Behaviors such as *confrontation* are counted as MI non-adherent. Using *reflection* and the way questions are asked during the session are also counted in this part. For the client, four types of verbal behavior that reflect the client's language during the MI session are counted. Verbal contents including possibility of change, resistance to change, and occurrence of asked questions by the client are measured as frequency counts (Moyers, Martin, et al., 2005). In the third pass, the length of the interaction is calculated (Miller et al., 2003).

The first version of the MISC was intended for evaluating counselor competence before and after training in MI. As cited in the work of Moyers, Martin, and colleagues (2005), Miller and Mount used the MISC to evaluate training from MI workshops for probation and parole officers. Results of their study indicate that there was a significant increase in MI Consistent behaviors (such as *reflective listening*), and at the same time, no decrease in MI Inconsistent behaviors (such as *confrontation*). The results of this study indicate that training should be focused both on stimulating MI behaviors and minimizing non-MI behaviors (Moyers, Martin, et al., 2005, p. 20). Baer and colleagues used the MISC to detect the effect of the intervention before and after the training of students in MI. Their results indicate that the MISC is sensitive enough to detect changes after training (Baer et al., 2004, as cited in Moyers, Martin, et al., 2005, p. 20).

After the first version of this instrument, Miller and colleagues (2003) created two other versions (MISC 2.0 and MISC 2.1) with the intent to improve the first one and develop a new instrument that would be more reliable, valid, and efficient.

*Psychometric properties.* Although the overall reliability of this instrument was acceptable, some items showed insufficient reliability in some studies. For example, Moyers and colleagues (2003) evaluated the reliability of MISC, and found differential reliability between the overall domains (behavioral vs. global counts) as much as among specific behaviors. The authors explained this result by "very low frequency of some items" among well-trained MI counselors (Moyers, Martin, et al., 2005, p.21). As cited in Madson and Campbell (2006), Tappin and colleagues (2000) reported ICCs values 0.39 for the therapist scale, 0.53 for the client scale, and 0.51 for the interaction scale; while Moyers and colleagues (2003) reported ICCs values from 0.25 to 0.79 for the MISC global items and from 0 to 1.00 for the behavioral counts (Madson & Campbell, 2006). According to Cicchetti's categorization system of ICC, the ICC value range for the behavioral counts is very broad with ICC values ranging from poor to excellent (Cicchetti, 1994). Similarly, the ICC values for the global items range from poor to excellent.

*Conclusions regarding the MISC.* The literature emphasizes that MISC can be a very appropriate tool if there is a need for quantification of the therapist's adherence to MI (Madson & Campbell, 2006). Complexity and cost are two disadvantages of MISC. It takes at least three months of intensive training for coders. Also, each individual evaluation requires 90-120 minutes considering that there are three passes of 20 minute segments of the therapy session (Moyers, Martin, et al., 2005). Another critique is that the MI principles are covered by the MISC, but in an "unbalanced fashion" (Madson & Campbell., 2006, p. 69). Although the MISC is one of the

first MI instruments and is well developed, the length of the instrument and the evaluation process are not efficient for brief counseling interventions, because there are three passes and that can reduce inter-rater reliability (Lane et al., 2005).

**Motivational Interviewing Treatment Integrity Scale (MITI).** The need for a more "condensed", "reliable", and "economical" instrument for evaluating clinician competence in MI contributed to the development of the MITI (Moyers, Martin, et al., 2005, p. 21).

*Measure description.* The authors of the MITI and MISC emphasize that there is a difference between the two instruments. The MITI measures only the health care provider's behavior. Audiotapes of individual counseling were used for this evaluation (Moyers, Martin, et al., 2005). The MITI has only one pass. The behaviors are fused into one category instead of being observed as an individual concept. The MITI has two components: the global score and behavior counts. The score is intended to capture the rater's global impression of two main dimensions: empathy and *spirit of MI* (*autonomy*, *evocation*, and *collaboration*). A seven-point Likert scale is used for the rating of empathy and *spirit of MI* (Moyers, Martin, et al., 2005). There are four behavioral counts: MI *adherence* (*asking permission, affirmation, control emphasis,* and *support*), MI *non-adherence* (*advice giving*, *confrontation,* and *direction*), *questions*, and *reflections*. Questions were sub-classified as closed questions and open questions. Reflections were sub-classified as simple and complex (Mounsey et al., 2006). For the behavioral counts, the coder is required to count the number of events or episodes of the target behaviors from the beginning until the end of the intervention. The coder does not evaluate the quality of the overall event (Moyers, Martin, et al., 2005).

*Psychometric properties.* Reliability was estimated by random selection of a subset of 50 tapes rated by three independent coders trained for 40 hours in MI for adequate inter-rater

reliability. Inter-rater reliability was calculated with intraclass correlation (ICC). ICCs of the

global ratings were 0.51 for empathy/understanding and 0.58 for *spirit of MI*. The ICC values for

empathy/understanding and for the *spirit of MI* are fair according to Cicchetti's categorization

system (Cicchetti, 1994). However, the ICC values for the behavioral counts ranged from fair to

excellent. The ICCs for the behavioral counts were from 0.57 to 0.96 (Madson & Campbell,

2006). To ensure the sensitivity of the MITI in detecting behavior change, 20 pairs of pre-post

training tapes were coded (Moyers, Martin, et al., 2005). The validity of the MITI was calculated

with canonical correlation between the MISC and the MITI items as the same tapes were

reviewed using both measures. The results demonstrated convergence between the MITI and the

MISC (Madson & Campbell, 2006).

  ***Conclusions regarding the MITI.*** The MITI has a less comprehensive coding system

than MISC. MITI has only one pass compared with MISC, which has three passes. The MITI

assesses use of empathy and MI microskills, but it does not capture the purpose of the use of MI.

Another consideration for this assessment tool is that the reliability coefficients for the two

global items, empathy/understanding and the *spirit of MI*, are fair in terms of clinical significance

(Madson & Campbell, 2006).

  **Behavior Change Counseling Index (BECCI).** Another instrument is the Behavioral

Change Counseling Index (BECCI).The BECCI is an instrument developed to measure

Behavioral Change Counseling, an approach adapted from MI. The need for an instrument that

can measure behavior change skills, especially in the health care setting, and can be scored

easily, led to the development of BECCI.

  ***Measure description.*** The BECCI is a checklist that measures competence of

practitioners in BCC (Lane et al., 2005). Behavior Change Counseling (BCC) aims to help the

practitioner understand how the person feels about changing his/her behavior and what specific plans the person may have for changing his/her behavior. The BECCI is designed for brief interventions in health care settings. This assessment instrument is more focused on the practitioner's consulting behavior and attitude, instead of the responses of the patient. Videotapes were used for the development of the BECCI, although in general, the BECCI was developed for use with audiotapes. That is the main difference between the BECCI and MISC. The BECCI contains 38 items. Generation of the items was based on theory and practice. Items were subdivided in four sub-categories based on main behavioral change counseling concepts. The categories are: agenda setting and permission seeking; how and why of change in behavior; the consultation as a whole; and talk about the target (Lane et al., 2005; Lane, C., 2002).

*Psychometric properties.* A panel of 12 experts in the field was consulted about the items, and nine of them provided feedback. They rated the items according to their relationship with Behavior Change Counseling (BCC) on a scale from 1 (not at all) to 5 (extremely). The expert panel gave feedback on the item content validity. After the item selection, of the original 38 items only 20 items remained in the instrument, and were then exposed to future validation. The first item set was selected using a checklist. In the process of item selection, a frequency chart was developed and all non-checked items were removed from the checklist. The second and third data sets were rated by the same researcher. After that, a pilot study was conducted and two researchers trained in BCC independently scored the fourth data set. In the next step, researchers discussed content validity and items were modified and cross-checked against the fifth data set (Lane et al., 2005).

The last set of data was subjected to a construct explication exercise. This is a technique that can portray the relationship between specific behaviors and abstract constructs. The

construct explication technique shows whether all of the items measure the BCC construct. The panel of experts in the field also evaluated whether the items were consistent with the BCC construct. The face validity of the final checklist was conducted, and the items that concentrated on the patient behavior rather than on the counselor were rephrased (the main concentration of the checklist is upon practitioner behavior, not the patient). Internal consistency was checked by dividing the items in two sub groups: noncore items and core items. Core items should be completed in every interaction between the health care provider and the patient. Core items were analyzed using inter-item correlation, item-total correlation, Cronbach's Alpha, Alpha when an item is deleted, and single factor solution. Noncore items were analyzed using descriptive statistics (overall scale mean, item means, and inter-item correlation). Changes were made in two phases. In the first phase, internal consistency was checked on the existing items. In the second phase, internal consistency tests were repeated on the corrected scale (Lane et al., 2005).

Reliability was examined through internal consistency, inter-rater and test-retest reliability. When internal consistency was examined, the mean inter-item correlation in the core item analysis was 0.22 for the baseline consultations and 0.14 for the final consultations. The inter-item correlation values indicate low internal consistency. Cronbach's Alpha for the baseline consultations was $\alpha = 0.71$, and $\alpha = 0.63$ for the final consultations (Lane et al., 2005). Inter-rater reliability was assessed with two researchers rating the data sets independently, without consulting each other during the rating process. Test-retest reliability was examined ten weeks after examining the inter-rater reliability. BECCI demonstrated a good level of inter-rater reliability and moderate to good level of test-retest reliability.

To test the responsiveness of the BECCI, a Standardized Response Mean (SRM) was calculated. Changes in BECCI scores before and after training were calculated to test the

sensitivity of the checklist. The sensitivity of the BECCI to change, before and after training, was high and led to the conclusion that the BECCI could detect change in practitioner performance before and after training in BCC (Lane et al., 2005).

*Conclusions regarding the BECCI.* The authors point out that the BECCI is appropriate for brief interventions in health care settings (Lane et al., 2005). However, because the BECCI has been tested for validity and reliability only on simulated consultations, it may not be reliable in real consultations. Another remark from the authors is that the BECCI focuses purely on practitioner behavior rather than patient behavior. Lane and colleagues (2005) highlight the importance that more research needs to be done to confirm that the BECCI scores can be linked to behavior changes in patients. The BECCI was developed for brief interventions in Behavioral Change Counseling, but not for MI, although some of the measured skills are related to MI.

**Motivational Interviewing Process Code (MIPC).** Another assessment instrument developed to evaluate competence in MI of social workers who work with patients with substance abuse problems is the Motivational Interviewing Process Code (MIPC).

*Measure description.* The MIPC measures only the interviewer's behavior. This instrument was used with videotaped interviews with simulated clients. Ten minute-long videotaped segments were used. The MIPC consists of two parts: listening and evaluating functional skills and listening and evaluating dysfunctional skills.

The MIPC has two subscales. The first subscale is measuring functional skills. This subscale has 13 items that are rated on a Likert scale ranging from 1 (component not demonstrated) to 5 (outstanding). The items measure micro counseling skills such as expressing empathy and skills associated with the *spirit of MI* such as discrepancies and ambiguity. The second subscale measures dysfunctional skills. It has 12 items also rated on a 5-point Likert scale

ranging from 1 (demonstrates throughout the interview) to 5 (avoids completely). "Items include

MI inconsistent behaviors such as arguing/debating with the client and labeling the client"

(Madson & Campbell, 2006, p. 69).

      *Psychometric properties.*  The inter-rater reliability of the MIPC was established through

an analysis of the percentage of agreement between raters for the functional skills subscale

51.27% and the dysfunctional skills subscale 75.03%. While the dysfunctional skills subscale

inter-rater agreement is within acceptable range, the functional skills subscale inter-rater

agreement is considerably lower than recommended. According to Madson and Campbell

(2006), "the consensus that was achieved during the focus groups of professionals is evidence for

construct validity" (Madson & Campbell, 2006 p. 69). The consistency between the language

used by practitioners in the focus groups and that used in the literature was also considered as

evidence of validity (Madson & Campbell, 2006).

      *Conclusions regarding the MIPC.*  According to the authors, MIPC is less time

consuming because it requires reviewing the brief interaction only once. Although this measure

was intended to evaluate skill acquisition, it assesses adherence more than quality of MI (Barsky

& Coleman, 2001).  This scale does have some limitations. The authors did not define what

criteria were used to determine what it means to be an expert in MI. Also, the professionals

themselves identified the language instead of using the language from the literature to

operationalize MI functional and MI dysfunctional skills. This limitation can pose a threat to

both the validity and reliability of the scale (Madson & Campbell, 2006).

      **Motivational Interviewing Supervision and Training Scale (MISTS).** The

Motivational Interviewing Supervision and Training Scale (MISTS) was developed to assess MI

skills acquisition in settings and contexts similar to those assessed by MISC, but was targeted for use in either clinical or research settings.

*Measure description.* The MISTS measures the interviewer's behavior. The MISTS evaluates both behavioral counts of skills consistent with MI and the quality of the intervention. Behavioral counts are based on the type of therapist responses used during sessions. The quality of the intervention was evaluated with a 16-item global rating scale, MI fidelity, and effectiveness of therapist intervention (Madson et al., 2005). To complete the first part of the scale, raters reviewed a recorded therapy session and counted the therapist's use of: *open ended questions*; *closed ended questions*; *simple reflection*; *complex reflection*; *affirmation*; *summarization*; *interpretation*; or *providing information or advice*. Also, raters had the opportunity to identify when the therapist evoked change talk in the client. If the therapist "fails to elicit or reinforce client change talk", this was counted as a missed opportunity (Madson et al., 2005, p. 305).

The second part of the scale consists of 16 items of global rating and is organized in three categories: specific active listening skills; specific skills that demonstrate the *spirit of MI*; and overall therapist ratings. Items are rated on a 7-point Likert scale (Madson et al., 2005). The important points for the analysis of present or absent skills were points 1, 4, and 7 for each item, with low scores indicating poor use of a specific skill.

*Psychometric properties.* The authors achieved inter-rater reliability using generalizability theory. The overall generalizability coefficient was 0.79, and was considered excellent. Convergent and discriminant validity were examined by comparing the total score on the MISTS with the General Support and Goals for Treatment six subscales of the Yale

Adherence and Competence Scale (YACS). Positive correlation was found between MISTS total score and YACS Assessment, Support and Goals subscales (Madson et al., 2005).

*Conclusions regarding the MISTS.* The MISTS is appropriate for use in training, supervision, and research settings. The authors point out that the instrument has not been validated for use in samples and settings other than those that involve helping substance abuse patients (Madson et al., 2005).

**Summary**

A brief summary of the above-discussed existing assessment tools in MI and their properties is included in Table 1 (Appendix A). The overview of existing assessment tools of MI leads to the conclusion that there is a lack of instruments that focus on measuring competent use of MI skills and quality of the therapeutic alliance in *very brief patient-health care provider interactions*.

Based on the extensive literature, the purpose of this research study was determined. The focus of this research project was to develop a brief and effective instrument that would measure the level of competence of the use of MI skills and principles as well as assess the quality of the patient-health care provider interaction. The assessment tool was implemented in brief, 5-minute interactions between mock patients and health care providers trained at the Auburn University Motivational Interviewing Training Institute (AUMITI) (20 hours training in MI occurring at the Harrison School of Pharmacy at Auburn University, Auburn, Alabama).

The previously used assessment tools were more focused on the skills assessment and less focused on the evaluation of the interaction between the patient and the provider. In this study, an assessment tool for evaluation of acquisition and use of specific MI skills and use of MI principles, as well as the process in the interpersonal interaction or the quality of the patient-

provider therapeutic alliance was developed. Process evaluation provides data not only of skills acquisition, but also regarding what actually occurs during the intervention delivery (Emmons & Rollnick, 2001). Process evaluation addresses questions not only about the competence in MI, if the patient received the intervention as planned, or how much of the intervention the patient received, but it also focuses on whether there is a flow in the interaction and the strategies used. Moving smoothly through the interaction, unbroken continuity regarding topics of focus and/or conversation, and absence of interruptions shape the flow of the interaction. The advantages and disadvantages of the existing assessment tools were considered during the process of instrument development. The developed assessment tool also evaluates one aspect of the process in the interpersonal interaction. The instrument is designed to specifically evaluate health care providers trained in MI whose work is focused on comprehensive disease management and improvement of clinical outcomes.

**Methodology**

**Participants**

The subjects in this study were trainees from the Auburn University Motivational Interviewing Training Institute (AU MITI) - an institute that trains health care professionals (primarily nurses, pharmacists, case managers, and social workers) in motivational interviewing for disease management interventions. Subjects were anonymously viewed on videotapes that had been made during their participation in the AU MITI. The training received by these subjects focused on health care professionals obtaining knowledge in MI principles and skills as well as how they can use the principles and skills in brief interactions with patients. The training also concentrated on preparing health care professionals to elicit behavioral changes in patients through application of theoretical knowledge and exercises. The training lasted 20 hours over two-and-a-half days. Three trainers who are experts in MI were involved in the training process. At the end of the training, trainees' knowledge and skills in MI were evaluated as they engaged in two interactions with standardized mock patients who had been trained to play the role of a patient for this particular interaction. Each trainee was assigned two mock patient encounters. Trainees had five minutes of interaction with each patient to demonstrate MI skills. The assessment tool was used to assess video-taped interactions of trainees from the AU MITI.

**Procedure**

  **Patient-trainee interaction.** In this study, the patient-trainee interaction was a mock interaction that had been previously video-recorded. The duration of the interaction was five minutes. The patient in the interaction was a standardized patient who had been hired to play the role of a patient. The standardized patient had been given a scenario, training, and guidelines to follow. Two scenarios were used for the interaction. One scenario had a female patient presenting one health condition. In the other scenario a male patient presented another health condition. In both scenarios, the health conditions were complex and required medication adherence and lifestyle change behaviors from the patient. The provider was a trainee from AU MITI. The recorded interactions took place at Auburn University, Harrison School of Pharmacy, and occurred in the academic years 2006-2007 and 2007-2008. A research protocol was submitted to Auburn University's Institutional Review Board. The protocol was approved prior to the review of the recorded interactions.

  **Instrument development.** This study developed an assessment tool and examined its validity and reliability. To develop an assessment tool measuring acquired knowledge and skills in MI, knowledge on performance assessment in training is needed. As noted by Rudner & Schafer (2002), performance-based assessment includes a set of strategies that are used to evaluate the application of knowledge and skills through the performance of a task meaningful to the learner. This type of assessment would provide an instructor or trainer in MI skills and principles an understanding of how the trainee understands and applies knowledge (Rudner and Schafer, 2002). To develop the instrument, the following were considered: the specific concepts and skills related to MI; what each trainee should know; what level each trainee would need to perform at; and what type of knowledge is being assessed (reasoning, memory, or process). For

the purpose of this study, a formal performance measure was developed, as each trainee who completed the training in MI knew that his/her knowledge and mastery of skills and principles were being evaluated through a mock interaction with a patient.

Certain steps were followed, based on recommendations from the literature on assessment tool development (Gable & Wolf, 1993). The steps applicable to the development of a performance-based measure are as follows: developing conceptual and operational definitions; selecting a scaling technique; selecting a response format and developing directions for responding; preparing drafts of the instrument and conducting a review of items; preparing a final draft of the instrument; analyzing internal consistency; inter-rater and test-retest reliability; and preparing a manual for the developed instrument and examples of MI adherent and MI non-adherent behaviors document.

In any instrument development, adequate definition of the measured construct is crucial. If the construct is well defined at the beginning of the instrument development, the possibility that items deviate from the construct being measured is minimized, which leads to reducing threats to content validity. In the process of defining the construct and its concepts under investigation, the content and construct validity are dependent on the operational definitions. Operational definitions originate from conceptual definitions and specify exactly how the concept will be measured. Conceptual definitions should be developed on the basis of existing literature about the concept (Gable & Wolf, 1993). In this study, MI, with its guiding principles, strategies, and microskills, was defined on a conceptual and an operational level. The five core principles, strategies, and microskills are measured with the assessment tool and are represented by its items, with the focus being on the *spirit of MI* and the MI philosophy implemented in the process.

For the instrument developed in this study, the items are formatted as confirmatory statements describing the particular MI concept measured by the item. Also, each item represents and measures only one idea or concept. Having two concepts for one item affects accurate rating, because while one of the concepts/skills may be demonstrated by the trainee, the other may not be demonstrated. The language used in item construction is "the language of MI", meaning, language that is already used by the developers of MI.

The validity and reliability of the instrument depend on how well the items are written and how well they represent the measured construct. To reduce the possibility for error, it is necessary to know as much as possible about MI. To develop a valid and reliable instrument, one needs to be aware that the number of items depends on the breadth of the construct. Considering that MI is a broad construct, initially longer drafts of the instrument were developed, with the intent to create a final draft of the instrument with greater validity and reliability.

The instrument in this study was developed using the rubric format. Also, as discussed in the literature review, one way of categorizing rubrics is as holistic or analytic. This study focused on developing a performance measure that uses the principle of analytic rubrics. Rubrics can be also categorized as general or task specific (Rudner & Schafer, 2002). Because the instrument in this study measures a specific performance (a timed interaction between a trainee who has completed the training and a mock patient), the developed instrument is a task-specific measure.

During the process of instrument development, several drafts were developed. During this process items were retained or removed based on expert feedback. Some of the items were merged to create an item that would measure a skill in a more comprehensive way. Based on the review of experts with areas of expertise in Motivational Interviewing, Assessment, Instrument Development, Counseling Psychology, and Clinical Pharmacy, the final draft of the instrument,

called the *Motivational Interviewing Skills for Health Care Encounters* (MISHCE; see Appendix C) was developed. More precisely, the process of establishing face and content validity occurred in two rounds of expert panel revisions. In the first round, the instrument was sent to ten experts. From the ten experts, six provided feedback about the face and content validity of the instrument. An evaluation form was developed ("Panel of Experts Review Form", see Appendix B), containing three main evaluation areas. The first area, Item Evaluation, provides an evaluation of the extent to which each item was appropriate for the instrument. Experts used the following scale to indicate whether the item was appropriate for the instrument: (1) indicated that the item "Needs Improvement"; (2) indicated that the item was "Satisfactory"; and (3) indicated that the item was "Exemplary ". The experts were also asked to comment on the strengths and weaknesses of each item, and to indicate if items should remain in the instrument "as is", should be removed, should be broken into two items, or should be merged into one item. The second and third evaluation areas were developed to capture the experts` opinion about the content as well as the way of measuring the skills in the rubric. Utilizing the expert feedback, changes were implemented and, ultimately, another draft of the instrument was developed.

Two other documents were developed for the purpose of providing practical assistance to experts who would want to use the MISHCE. The manual and examples of MI adherent and MI non-adherent behaviors document may be found in Appendix D and E, respectively. The manual describes the structure, scope of use, and scoring of the MISHCE. The manual serves as a guide to those who wish to use this assessment tool in evaluating the level of acquisition of MI knowledge and skills of healthcare professional trainees in MI. The examples of MI adherent and MI non-adherent behaviors document is a brief overview of possible examples of MI adherent

and MI non-adherent behaviors and, along with the manual, is used in conjunction with the assessment tool.

After the implementation of the suggested changes from the experts, and the development of the manual and the examples of MI adherent and MI non-adherent behaviors document, these three documents were sent to the same panel of ten experts for the purpose of establishing content validity on the draft. Eight of the ten experts provided feedback. Based on their feedback, changes were implemented in the instrument and the manual, and a new draft of the instrument was developed. This draft was retained as the final draft of the MISHCE. The instrument is described below.

**Motivational Interviewing Skills for Heath Care Encounters (MISHCE)**

The MISHCE is structured into five domains related to MI. These domains were derived from the literature and feedback from the expert panel. Each of the five domains consists of a set of skills used during an MI encounter, and each set of skills is closely related to its domain. The five domains include: MI Philosophy, Health Interviewing, Motivation, MI Principles, and Interpersonal Process. The MI Philosophy domain consists of the following MI skill: Exhibits the 'Spirit of MI'. The Health Interviewing domain consists of the following MI skills: Elicits/addresses the patient's understanding about the illness and/or treatment; Elicits/addresses the patient's awareness of susceptibility/ risk of uncontrolled illness/condition; and Elicits/addresses the patient's desired health outcomes/goals. The Motivation domain consists of the following MI skills: Elicits/addresses the patient's motivators and barriers for behavioral change; and Reflects and affirms change talk. The MI Principles domain consists of the following MI skills: Expresses empathy; Supports self-efficacy; Rolls with resistance and Develops discrepancy. The Interpersonal Process domain consists of the following MI skills:

Resists the righting reflex; Uses reflective listening; Uses open-ended questions; Uses agenda setting; and Moves smoothly through the interaction. Each skill under each domain can be described by behaviors that the health care provider/trainee needs to engage in to demonstrate the presence of that specific MI skill. MI skills can differ from one another in terms of their complexity and the number of behaviors that describe them. Some skills can be described by fewer behaviors, while others by a number of behaviors. All skills are equally important as they equally contribute to the effectiveness of the interaction between the health care provider and the patient.

A brief overview of the format and scoring process is described here; extensive detail can be found in the manual in Appendix D. The format of the instrument is an analytic rubric, meaning the instrument has the format of a rating scale consisting of pre-established descriptive scoring criteria. Each item on the instrument measures a specific skill. The skills in the domains MI Philosophy, Health Interviewing, and Motivation are evaluated on a three-point rating scale, Deficient, Developing, and Accomplished. The evaluator rates each skill in all three domains as an episode that occurs during the interaction rather than rating a certain behavior. Therefore, the evaluator focuses on the quality of the episode as a whole. The evaluator marks "X" in one of the four boxes to the right of the item (skill), depending on whether h/she has evaluated the skill as "Deficient", "Developing", "Accomplished", or "N/A". The skills in the domains MI Principles and Interpersonal Process are evaluated on the same three-point rating scale: Deficient, Developing and Accomplished. However, each skill of these domains is evaluated based on behavioral occurrences demonstrated by the trainee. The evaluator marks "X" in one of the four boxes to the right of the item (skill), depending on whether s/he has evaluated the behavioral occurrence as "Deficient", "Developing", "Accomplished", or "N/A".

The three levels of measurement are: Deficient (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction); Developing (MI adherent skill partially present or skill is present on a basic/simplistic level); and Accomplished (MI adherent skill is well developed and sophisticated). The descriptor Deficient is scored as zero, "0", indicating the absence of the specific MI adherent skill measured by the specific item. The descriptor Developing is scored as one (1), indicating a medium level of acquisition of MI adherent skill. The descriptor Accomplished is scored as two (2), indicating an evident presence of the MI adherent skill. These descriptors are qualitative indicators of the level of development of each measured skill.  The rater scores each skill (0, 1, or 2) every time the skill occurs. This means that it is possible that the trainee can display a certain skill more than once during the interaction. N/A does not indicate absence of a skill due to lack of knowledge, but simply means that the opportunity to present the skill did not occur and/or was unnecessary.

The above-described levels demonstrate not only the health care provider's competence and expertise in the skill, but also whether the skill was used at an appropriate time in the interaction. The following are the instructions for calculating the percentage or overall performance grade, of each trainee. The grade is calculated via a mean score for each item, not including skills scored as N/A. The mean "M" for each item is calculated by dividing the sum of scores on that item not including N/A scores, by the number of assigned scores. Then, all means on all scored items are summed to obtain the *Sum of means*. The next step is to sum all scored items (not including skills/items scored as N/A) to obtain the total number of scored items or the *Total Number* multiplied by two. The percentage is obtained when the *Sum of means* is divided by the *Total number* and the product is multiplied by one hundred.

**Validity.** Developing a valid and reliable instrument requires reduction of measurement errors as much as possible. "Measurement error is the degree to which the observed values are not representative of a 'true' value" (Hair, Anderson, Tatham, & Black, 2005, p. 9). There are different sources of measurement errors. Potential causes of measurement error include inaccurate instrument, inaccurate way of measuring, or inaccurate data entry. Reducing measurement error leads to a more accurate assessment of the construct. Reducing measurement error is time and effort consuming. Having a good theoretical base for possible measurement errors and considering them during research can improve the quality of the research design and the study (Hair et al., 2005).

The first step in the process of reducing measurements errors is to concentrate on validity and reliability of the measure. "Validity is the degree to which a measure accurately represents what it is supposed to" (Hair et al., 2005, p. 9). There are several types of validity (content, construct, criterion-related, incremental, and discriminant) and each type is important to consider when developing an instrument. Cronbach (1972) states that content validity reveals "to what extent the items on the instrument adequately sample the intended universe of content" (Gable & Wolf, 1993, p. 96). Yaghmale (2003) emphasizes that content validity measures the "comprehensiveness and representativeness of the content" of the assessment tool (Yaghmale, 2003, p. 25). Content validity is assured by accurate conceptual and operational definitions of the domain of the investigation. Development of the conceptual definitions has two steps. The first is a comprehensive literature review. After the content is defined based on the existing literature, a panel of experts (at least five) in the field should agree with conceptual definitions (Gable & Wolf, 1993). Operational definitions are developed from the conceptual definition and revised again by the same content experts. The expert panel evaluates the correlation between conceptual

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and operational definitions, as well as revises the extent to which the items truly represent the content covered by the operational definitions. Then, the panel categorizes each item based on their personal opinion, and where they think each item belongs (Gable & Wolf, 1993). Because content validity is established based on judgment decisions, this is a judgmental process (Gable & Wolf, 1993).

*Expert panel.* For the purpose of this study the panel of experts consisted of faculty from the Department of Pharmacy Care Systems at Auburn University and experts in the field from other universities. The experts had extensive experience and knowledge in the theory behind MI and the application of MI in clinical and research settings. This is the list of the experts involved in establishing validity of the instrument: Jan Kavookjian, Ph.D., Department of Pharmacy Care Systems, Auburn University; Michael B. Madson, Ph.D., Department of Psychology-University of South Mississippi; William A. Villaume, Ph.D, Department of Pharmacy Care Systems, Auburn University; Sharon McDonough, Ph.D., Director for the Office of Teaching, Learning, and Assessment-Harrison School of Pharmacy, Auburn University; Joseph Abhold, Ph.D., Director, University Counseling Center, University of Wisconsin Oshkosh, Elena Petrova, Ph.D., Counseling Psychologist, University Counseling Center, University of Wisconsin Oshkosh; Heather P. Whitley, PharmD, BCPS, CDE Clinical Assistant Professor, Auburn University Harrison School of Pharmacy , Department of Pharmacy Practice and The University of Alabama School of Medicine, Tuscaloosa Department of Community and Rural Medicine; Kimberly S. Plake, Ph.D. Department of Pharmacy Practice- Purdue University; Michelle L. Breland, Doctoral Candidate, Department of Pharmacy Care Systems-Auburn University.

Examination of criterion validity, incremental validity, and discriminant validity, were not within the scope of the present study and will be examined in future research.

**Reliability.** Establishing reliability is a prerequisite for establishing validity. A valid assessment tool is by necessity reliable; however, a reliable assessment is not necessarily valid (Moskal & Leyden, 2000). "Reliability measures refer to the consistency or reliability of test scores or data" (Berg & Latin, 1994, p. 155). A reliable measure can decrease the measurement error. There are several different types of reliability including: test-retest; split-half; parallel forms; equivalent forms; and inter-rater reliability. For the development of the MISHCE, internal consistency reliability was examined. Internal consistency reliability is measured with Cronbach's alpha. Cronbach's alpha or coefficient alpha has a range from 0.0-1.0. Higher values for coefficient alpha indicate larger correlation. To meet reliability standards, this instrument needed to demonstrate a coefficient alpha of 0.75 or more. It is desirable that an alpha level of 0.80 is achieved because after the instrument is re-administered to a new sample, the value decreases (Gable & Wolf, 1993).

Two other aspects of reliability that are important to establish when designing an instrument are *inter-rater reliability* and *test-retest reliability*. Inter-rater reliability demonstrates the degree to which two or more raters agree on their judgments of an outcome. When the ratings are similar, the level of inter-rater agreement is higher (Salkind, 2005). In this study, five experts in MI reviewed the same set of randomly selected, eighteen video-recorded interactions and used the MISHCE to evaluate the knowledge and skills of trainees. Each interaction was evaluated not more than two times. The interactions were randomly selected from the sample using an internet-based research tool which generates random numbers (Urbaniak & Plous, 2010).

All five raters went through five hours of training on how to use the instrument. The raters evaluated two interactions together, during the training, until 80% agreement was reached. To ensure better inter-rater reliability, a two - hour pre-training session was also conducted with

one of the less experienced raters, a graduate student from the Department of Pharmacy Care

Systems at Auburn University, to insure the same level of knowledge and skill as the other raters.

The pre-training session included didactic training in MI as well as training on how to use a

rubric as an assessment tool. Raters were given ten days to complete the ratings for the 18

interactions. Then, inter-rater reliability was calculated to examine the level of agreement among

the experts. The literature proposes the use of intraclass correlation coefficients for calculation of

inter-rater reliability (Rousson, Gasser, & Seifert, 2002; Shrout & Fleiss 1979).

Test-retest reliability is used to examine whether a test is reliable over time (Salkind,

2005). Rousson and colleagues (2002) suggest that test-retest reliability demonstrates whether a

certain task provides reliable results or whether the task is dependent upon the research situation

or the state of the participants. This study tested consistency after a second administration. Two

weeks after completing the first round for rating the 18 interactions, the five experts were given

instructions to again rate the same set of 18 interactions for the purpose of establishing test-retest

reliability. Raters were again given ten days to complete the rating. The literature suggests the

use of Pearson r or product-moment correlation as measures of test-retest reliability (Rousson, et

al., 2002; Salkind, 2005; McGraw & Wong, 1996).

As the reliability of the study increases so does its power. Power is defined as "the

probability that the statistical significance will be indicated if it is present" (Hair et al., 2005, p.

11). The power of a test depends on the alpha level, effect size, and sample size. The alpha level

is the p-value that researchers decide to accept for Type I error. In the social sciences, an alpha

level of 0.05 is generally considered "acceptable". For the purpose of this study an alpha level of

0.05 was utilized. Sample size is in direct correlation with the power of the study. Reliability is

also a function of sample size. If the sample size is too small it will not allow for detection of a

significant difference (effect), because the power is low. Furthermore, if the sample size is very large, small differences, which may not be of practical importance, might be found (Kerlinger & Lee, 2000). Sample size calculation should be performed during the design stage of the study.

To obtain adequate power and avoid measurement error, recommendations based on guidelines for sample size were followed (Gable & Wolf, 1993). Sample size was calculated following the rule of having at least six times the number of subjects than the number of items on the instrument, as suggested in the literature (Gable & Wolf, 1993). As the MISHCE consists of 15 items, and each item measures a specific MI concept, the sample size was estimated to consist of 90 interactions. Two of the interactions had a technical (sound) problem, and were thus eliminated from the sample. The final sample size used in this study consisted of 88 interactions. To obtain this number of interactions, interactions from AUMITI training sessions that occurred in the years 2006-2007 and 2007-2008 were used.

## Results

**Validity**

The process of establishing the psychometric properties of the MISHCE consisted of two stages. The first stage was to establish the validity of the new assessment tool. The second stage was to establish reliability. During the instrument development, seven drafts evolved. Based on the review of experts with areas of expertise in Motivational Interviewing, Assessment, Instrument Development, Counseling Psychology, and Clinical Pharmacy, the final draft of the instrument, called Motivational Interviewing Skills for Health Care Encounters (MISHCE; see Appendix C) was developed.

The process of establishing face and content validity occurred in two rounds of expert panel revision. In the first round, the instrument was sent to ten experts. From the ten experts, six provided feedback about the face and content validity of the instrument. An evaluation form was developed (the "Panel of Experts Review Form", see Appendix B), containing three main evaluation areas. The first area, Item Evaluation, provides an evaluation of the extent to which each item was appropriate for the instrument. Experts used the following scale to indicate whether the item was appropriate for the instrument: (1) indicated that the item "Needs Improvement"; (2) indicated that the item was "Satisfactory"; and (3) indicated that the item was "Exemplary ". The experts were also asked to comment on the strengths and weaknesses of each item and to indicate if items should remain in the instrument "as is", should be removed, should be broken into two items, or should be merged into one item. The second and third evaluation

areas were developed to capture the expert's opinion about the content as well as the way of measuring the skills in the rubric.

The first five drafts of the instrument were a product of consultation of the researcher with the dissertation committee members, as well as obtained feedback from graduate students and professors from the Department of Pharmacy Care Systems who participated in a seminar class. The last two drafts of the instrument were developed based on the feedback from the expert panel. A draft was sent to the ten experts and six experts responded with feedback. Experts also suggested development of a manual for the instrument and a document containing examples of MI adherent and MI non-adherent behaviors. After the implementation of the suggested changes from the experts, the revised documents were sent to the ten experts, for the purpose of establishing content validity of the draft. Eight of the ten experts provided feedback. Based on their feedback, the changes were implemented, and a new draft of the instrument was developed. This draft was retained as the final draft of the MISHCE. With the procedure described above, the first research question was addressed. The face and content validity of MISHCE was supported through expert panel consensus.

The two other documents that were developed for the purpose of providing practical assistance to users of the MISHCE are the manual and the examples of MI adherent and MI non-adherent Behaviors. The manual and examples of MI adherent and MI non-adherent behaviors documents can be found in Appendices D and E, respectively. The manual describes the structure, scope of use, and scoring of the MISHCE. The manual serves as a guide to those who wish to use this assessment tool in evaluating the level of acquisition of MI knowledge and skills of healthcare professional trainees in MI. The examples of MI adherent and MI non-adherent behaviors document is a brief overview of possible examples of MI adherent and MI non-

adherent behaviors. Both the manual and the examples of MI adherent and MI non-adherent

behaviors document are meant to be used in conjunction with the assessment tool.

**Reliability**

Following the examination of validity, the reliability of MISHCE was examined. The

internal consistency reliability, inter-rater reliability and test-retest reliability were investigated.

**Internal consistency reliability.** Internal consistency reliability was performed using

the Statistical Package for the Social Sciences (SPSS), version 16. The sample size ($N$) was 88.

Cronbach's alpha, which assesses consistency in scores among items, was computed. The greater

the consistency in responses among items in the whole instrument, the higher this coefficient

should be. The overall internal consistency reliability (Cronbach`s alpha) for all fifteen items was

0.75, at a 95% confidence interval. This internal consistency reliability value addresses the

second research question, and confirms acceptable level of internal consistency reliability

(Cicchetti, 1994).

As part of the internal consistency analysis, the internal consistency reliability for each

item, or Cronbach's alpha if item deleted, has been reported. Cronbach's alpha if item deleted is

the reliability coefficient for internal consistency if the individual item is removed from the

instrument. Cronbach's alpha if item deleted, item-total correlation, means and standard

deviations for the fifteen MISHCE items are presented in Table 2. The results demonstrate that

Cronbach's alpha (if item deleted) in thirteen from fifteen items is below 0.75-the overall internal

consistency reliability (Cronbach`s alpha) for all fifteen items. Only two items, *Rolls with*

*resistance* and *Develops discrepancy,* have Cronbach's alpha if item deleted higher than 0.75.

The *Rolls with resistance* item has a Cronbach's alpha if item deleted of 0.80 and *Develops*

*discrepancy* item has a Cronbach's alpha if item deleted of 0.76.

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Table 2

*Internal Consistency Reliability-Cronbach's Alpha if Item Deleted*

| | Cronbach's alpha | Item-total Correlation | *M* | *SD* |
|---|---|---|---|---|
| Exhibits the 'Spirit of MI' | 0.70 | 0.75 | 2.21 | 0.63 |
| Elicits / addresses patient's understanding about the illness and / or treatment | 0.73 | 0.37 | 2.46 | 0.64 |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition | 0.73 | 0.41 | 1.76 | 0.80 |
| Elicits / addresses patient's desired health outcomes / goals | 0.74 | 0.27 | 1.60 | 0.81 |
| Elicits / addresses patient's motivators and barriers for behavioral change | 0.73 | 0.35 | 1.91 | 0.69 |
| Reflects and affirms change talk | 0.71 | 0.60 | 2.12 | 0.80 |
| Expresses empathy | 0.72 | 0.52 | 2.01 | 0.61 |
| Supports self-efficacy | 0.74 | 0.27 | 2.58 | 0.75 |
| Rolls with resistance | 0.80 [a] | -0.00 | 1.46 | 1.33 |
| Develops discrepancy | 0.76 [a] | 0.13 | 0.45 | 0.94 |
| Resists the righting reflex | 0.73 | 0.47 | 2.35 | 0.53 |
| Uses reflective listening | 0.73 | 0.38 | 2.02 | 0.73 |
| Uses open-ended questions | 0.73 | 0.43 | 2.44 | 0.53 |
| Uses agenda setting | 0.73 | 0.39 | 2.21 | 0.75 |
| Moves smoothly through the interaction | 0.71 | 0.62 | 2.30 | 0.58 |

*Note. M* = mean; *SD* = standard deviation;
[a] α increases if item is deleted

Internal consistency reliability was calculated per domain to examine the correlation between the items in each domain. The results are reported in Table 3. These values address the third research question. Of all five domains, the Interpersonal Process domain has an acceptable internal consistency reliability coefficient, while the rest of the domains have an unacceptable internal consistency reliability coefficient.

Table 3
*Internal Consistency Reliability-Cronbach's Alpha per Domain*

|  | Number of items | Cronbach's alpha | *M* | *SD* |
|---|---|---|---|---|
| Health Interviewing | 3 | 0.46 | 5.83 | 1.57 |
| Motivation | 2 | 0.47 | 4.03 | 1.21 |
| MI Principles | 4 | -0.08 | 6.52 | 1.84 |
| Interpersonal Process | 5 | 0.71 | 11.32 | 2.14 |

*Note. M* = mean; *SD* = standard deviation

**Inter-rater reliability.** After calculating the internal consistency reliability, inter-rater reliability calculations to establish agreement among the raters were performed. The Intraclass Correlation Coefficient (ICC) was used as an estimate of the inter-rater reliability of each item. ICC is a statistic that demonstrates how much elements from the same group resemble each other, or in the case of inter-rater reliability, how much the ratings from the five raters resemble each other. A two-way mixed model, consistency and average measure were used in the process of calculating the ICC. The two-way mixed model was chosen because the raters were not randomly chosen from a larger pool of raters. Another reason for the choice of a two-way mixed model is that it excludes systematic error. Consistency and average measure were chosen to

reveal the reliability among raters. The confidence interval is 95%. The sample size (N) of the randomly selected MI encounters is 18.

Table 4 displays the ICC values for each item. According to the Cicchetti (1994) categorization system for evaluation of the significance of ICC, the following categories are used to indicate the significance of the ICC values: poor when ICC is below 0.4; fair when ICC falls between 0.4 and 0.59; good when ICC falls between 0.60 and 0.74; and excellent when ICC falls between 0.75 and 1.00. The results in this table across all items showed that eight of the fifteen items (*Exhibits the 'Spirit of MI'; Elicits / addresses patient's understanding about the illness and / or treatment; Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition; Elicits / addresses patient's motivators and barriers for behavioral change; Reflects and affirms change talk; Supports self-efficacy; Uses reflective listening, and Moves smoothly through the interaction*), had excellent ICC values, five (*Elicits / addresses patient's desired health outcomes / goals; Expresses empathy; Develops discrepancy; Uses open-ended questions; and Uses agenda setting*) had good ICC values, one item had fair ICC value (*Rolls with resistance*), and one item had poor ICC value *(Resists the righting reflex)*. The ICC values address the fourth research question. Not all items of the MISHCE have inter-rater reliability coefficients in the good to excellent range. Thirteen of the fifteen items have coefficients that fall in the good to excellent range.

Table 4

*Inter-rater Reliability - Intraclass Correlations (ICCs) for Individual Items and Classification of Significance*

| | ICC | Classification [a] |
|---|---|---|
| Exhibits the 'Spirit of MI' | 0.83 | excellent |
| Elicits / addresses patient's understanding about the illness and / or treatment | 0.91 | excellent |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition | 0.86 | excellent |
| Elicits / addresses patient's desired health outcomes / goals | 0.67 | good |
| Elicits / addresses patient's motivators and barriers for behavioral change | 0.75 | excellent |
| Reflects and affirms change talk | 0.82 | excellent |
| Expresses empathy | 0.64 | good |
| Supports self-efficacy | 0.86 | excellent |
| Rolls with resistance | 0.59 | fair |
| Develops discrepancy | 0.74 | good |
| Resists the righting reflex | 0.21 | poor |
| Uses reflective listening | 0.83 | excellent |
| Uses open-ended questions | 0.70 | good |
| Uses agenda setting | 0.68 | good |
| Moves smoothly through the interaction | 0.83 | excellent |

*Note.* ICC = Intraclass Correlation Coefficient
[a] According to Cicchetti (1994)

**Test-retest reliability.** To examine the consistency of the MISHCE over time, test-retest reliability was examined. The Intraclass Correlation Coefficient and Pearson *r* with Standard Error of Measurement (SEM) were calculated, and the median values of the ICC, Pearson *r,* and SEM, per rater, were reported. ICC and Pearson *r* values represent correlations between the first rating and the rating after the second use of the MISHCE – intra-rater reliability. The median of ICC, Pearson *r* and SEM were reported because the data from the instrument is ordinal. SEM is a measure of the variability of the errors of measurement. The SEM values were reported to obtain a better understanding of the magnitude of error between the first and the second use of the assessment tool, by each rater individually (Kaplan & Saccuzzo, 2009). The ICC values are reported at the confidence interval of 95 %.

The ICC values represented in Table 5 are the median values of the ICC values for all fifteen items: rater 1 (0.61); rater 2 (0.70); rater 3 (1.00); rater 4 (0.78); and rater 5 (0.96). These values address the fifth research question. Based on these median values, three of the five raters have excellent, and two of the five raters have good test-retest reliability.

Table 5

*Test-retest Reliability - Intraclass Correlation Coefficient (ICC) per Item, for the Five Raters*

| | R1 | R2 | R3 | R4 | R5 |
|---|---|---|---|---|---|
| Exhibits the 'Spirit of MI' | -0.24 | 0.86 | 0.98 | 0.74 | 0.96 |
| Elicits / addresses patient's understanding about the illness and / or treatment | 0.61 | 0.73 | 1.00 | 0.91 | 1.00 |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness/ condition | 0.70 | 0.76 | 1.00 | 0.87 | 0.87 |
| Elicits / addresses patient's desired health outcomes / goals | 0.42 | 0.35 | 0.98 | 0.88 | 0.94 |
| Elicits / addresses patient's motivators and barriers for behavioral change | 0.65 | 0.59 | 1.00 | 0.94 | 0.84 |
| Reflects and affirms change talk | 0.45 | 0.59 | 1.00 | 0.88 | 0.94 |
| Expresses empathy | -1.08 | 0.74 | 0.99 | 0.92 | 0.82 |
| Supports self-efficacy | 0.58 | 0.69 | 1.00 | 0.90 | 1.00 |
| Rolls with resistance | 0.81 | -0.19 | 0.99 | 0.60 | 1.00 |
| Develops discrepancy | 0.00 | 0.71 | 1.00 | 0.76 | 0.96 |
| Resists the righting reflex | 0.78 | 0.63 | 0.99 | 0.14 | 0.85 |
| Uses reflective listening | 0.84 | 0.85 | 1.00 | 0.58 | 0.97 |
| Uses open-ended questions | 0.61 | 0.77 | 0.99 | 0.46 | 0.94 |
| Uses agenda setting | 0.84 | 0.46 | 1.00 | 0.55 | 0.97 |
| Moves smoothly through the interaction | 0.00 | 0.68 | 0.98 | 0.78 | 0.97 |
| Median | 0.61 | 0.70 | 1.00 | 0.78 | 0.96 |

*Note.* R1 = rater 1, R2 = rater 2, R3 = rater 3, R4 = rater 4, R5 = rater 5

The SEM values for the five raters are reported in Table 6. The median values of SEM for all fifteen items are the following: rater 1 has a SEM of 0.40; rater 2 has a SEM of 0.39; rater 3 has a SEM of 0.00; rater 4 has a SEM of 0.25; and rater 5 has a SEM of 0.05. These values can be found in Table 8. If the SEM values are closer to zero, the standard error is smaller. Zero reflects an absence of measurement error. The magnitude of SEM is inversely related to ICC (Kaplan & Saccuzzo, 2009).

Table 6

*Test-retest Reliability-Standard Error of Measurement (SEM) per Item for the Five Raters*

| | R1 | R2 | R3 | R4 | R5 |
|---|---|---|---|---|---|
| Exhibits the 'Spirit of MI' | 0.71 | 0.19 | 0.03 | 0.35 | 0.05 |
| Elicits / addresses patient's understanding about the illness and / or treatment | 0.40 | 0.41 | 0.00 | 0.15 | 0.00 |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness/ condition | 0.46 | 0.42 | 0.00 | 0.31 | 0.22 |
| Elicits / addresses patient's desired health outcomes / goals | 0.59 | 1.01 | 0.02 | 0.14 | 0.08 |
| Elicits / addresses patient's motivators and barriers for behavioral change | 0.19 | 0.37 | 0.03 | 0.09 | 0.19 |
| Reflects and affirms change talk | 0.65 | 0.59 | 0.00 | 0.20 | 0.09 |
| Expresses empathy | 0.96 | 0.31 | 0.00 | 0.10 | 0.16 |
| Supports self-efficacy | 0.30 | 0.34 | 0.00 | 0.11 | 0.00 |
| Rolls with resistance | 0.34 | 1.25 | 0.01 | 0.82 | 0.01 |
| Develops discrepancy | 0.55 | 0.49 | 0.00 | 0.26 | 0.09 |
| Resists the righting reflex | 0.18 | 0.39 | 0.42 | 0.85 | 0.12 |
| Uses reflective listening | 0.14 | 0.18 | 0.02 | 0.00 | 0.04 |
| Uses open-ended questions | 0.15 | 0.21 | 0.00 | 0.21 | 0.05 |
| Uses agenda setting | 0.29 | 0.90 | 0.00 | 0.54 | 0.05 |
| Moves smoothly through the interaction | 0.53 | 0.34 | 0.00 | 0.25 | 0.03 |
| Median | 0.40 | 0.39 | 0.00 | 0.25 | 0.05 |

Note. R1 = rater 1, R2 = rater 2, R3 = rater 3, R4 = rater 4, R5 = rater 5

Pearson *r* values indicate the magnitude and direction of a relationship. They can range from 0.000 to 1.000. The closer the value is to 1.000, the stronger the relationship between the test and the retest values. The direction of the relationship can be either positive or negative, with a positive relationship indicating that when test values increase (or decrease), retest values also increase (or decrease). A negative relationship indicates that when test values increase or decrease, the retest values go in the opposite direction. Pearson *r* coefficients of 0.100, 0.300, and 0.500, irrespective of sign, are by convention interpreted as small, medium, and large coefficients, respectively (Green & Salkind, 2003).

The Pearson *r* values for the evaluations among the five raters are reported in Table 7. The following values represent the median of the Pearson *r* values for all fifteen items: (Pearson *r* = 0.49) for rater 1, (Pearson *r* = 0.56) for rater 2, (Pearson *r* = 1.00) for rater 3, (Pearson *r* = 0.66) for rater 4, and (Pearson *r* = 0.92) for rater 5. The Pearson r coefficients indicate that four of the five raters have high magnitude of the relationship between their first and second evaluation, and one rater has medium magnitude of the relationship between the first and second evaluation.

Table 7

*Pearson r for Test-retest Reliability*

| | R1 | R2 | R3 | R4 | R5 |
|---|---|---|---|---|---|
| Exhibits the 'Spirit of MI' | -0.12 | 0.76** | 1.00** | 0.60** | 0.92** |
| Elicits / addresses patient's understanding about the illness and / or treatment | 0.54* | 0.61** | 1.00** | 0.83** | 1.00** |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition | 0.54* | 0.61** | 1.00** | 0.77** | 0.77** |
| Elicits / addresses patient's desired health outcomes / goals | 0.28 | 0.21 | 0.96** | 0.79** | 0.89** |
| Elicits / addresses patient's motivators and barriers for behavioral change | 0.54* | 0.42 | 1.00** | 0.92** | 0.72** |
| Reflects and affirms change talk | 0.29 | 0.41 | 1.00** | 0.79** | 0.89** |
| Expresses empathy | -0.39 | 0.60** | 0.98** | 0.85** | 0.71** |
| Supports self-efficacy | 0.49* | 0.56* | 1.00** | 0.82** | 1.00** |
| Rolls with resistance | 0.68** | -0.09 | 1.00** | 0.45 | 1.00** |
| Develops discrepancy | | 0.57* | 1.00** | 0.64** | 0.92** |
| Resists the righting reflex | 0.65** | 0.50* | 1.00** | 0.15 | 0.75** |
| Uses reflective listening | 0.74** | 0.75** | 1.00** | 0.41 | 0.94** |
| Uses open-ended questions | 0.44 | 0.63** | 0.97** | 0.31 | 0.88** |
| Uses agenda setting | 0.73** | 0.30 | 1.00** | 0.38 | 0.95** |
| Moves smoothly through the interaction | | 0.53* | 0.96** | 0.66** | 0.95** |
| Median | 0.49 | 0.56 | 1.00 | 0.66 | 0.92 |

** $p < 0.01$, * $p < 0.05$

*Note.* R1 = rater 1, R2 = rater 2, R3 = rater 3, R4 = rater 4, R5 = rater 5

## Discussion

### Interpretation of the Results

The MISHCE was developed to evaluate acquisition and use of specific MI skills and MI principles. This instrument was also developed to evaluate the interpersonal interaction or the quality of the patient-provider therapeutic alliance. The items in the MISHCE fall into five domains (MI Philosophy, Health Interviewing, Motivation, MI Principles, and Interpersonal Process) based on the theoretical framework behind the measured concepts. The assignment of items in the five domains is also based on the recommendations of experts for the purpose of making the instrument less complex, less time consuming, and more user-friendly than existing instruments. Considering the fact that this instrument is specifically designed for health care encounters, it consists of items that specifically assess the quality of MI skills used in this particular setting, as opposed to the psychotherapy and/or substance abuse applications of existing instruments.

**Validity.** The most important objective of this dissertation study was to develop a psychometrically valid and reliable instrument that can be used by those who train and evaluate health care providers in MI. This may be in the context of care provision to patients across health professions, or perhaps within intervention research studies which need an appropriate measure for use in intervention fidelity endeavors. In line with these objectives, claims for validity of the MISHCE are supported through the methods and results in this study. Thorough literature review in MI, application of an evidence-based instrument development process, expertise in assessment of skills, and knowledge, experience, and training in MI were necessary for establishing validity.

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Beyond and within these competencies, feedback from the panel of experts was utilized to establish face and content validity.

**Reliability.** Reliability of the MISHCE was investigated through internal consistency reliability, inter-rater reliability, and test-retest reliability as per the suggestion of Gable and Wolf (1993).

*Internal consistency reliability.* The overall internal consistency (Cronbach`s alpha) value of 0.75 demonstrates acceptable internal consistency for the MISHCE. The Cronbach's alpha value increased when the items *Rolls with resistance* and *Develops discrepancy* were removed in the analysis. The Cronbach's alpha value of 0.80 was demonstrated when the *Rolls with resistance* item was deleted. The Cronbach's alpha value of 0.76 was demonstrated when the *Develops discrepancy* item was deleted. This does not indicate a significant change in the Cronbach's alpha value, which, when all fifteen items are included, falls in the acceptable range. It is likely that the Cronbach's alpha increases if the two items are deleted because these two items (from the data set for establishing internal consistency) are most frequently labeled, not applicable (N/A). However, these two items are theoretically sound and are required for a fully-rounded MI skills measure. In addition, the particular interactions used for the evaluation included patient roles that were low in resistance. The complex nature of MI requires items that may or may not be applicable in every encounter.

When internal consistency reliability was calculated per domain, so that the correlation between the items in each domain could be examined, the following results were found: the Health Interviewing domain has a Cronbach`s alpha value of 0.46; the Motivation domain has a Cronbach`s alpha value of 0.47; the MI Principles domain has a Cronbach`s alpha value of -0.08; and the Interpersonal Process domain has a Cronbach`s alpha value of 0.71. The results are

consistent with expectations that only the items from the Interpersonal Process domain will be correlated and the Interpersonal Process domain will have an acceptable Cronbach`s alpha value (Cicchetti, 1994).

Regarding the Health Interviewing and Motivation domains, in the process of the brief interaction, the health care provider could choose to use all or some of the skills from the two domains. Skills from these two domains that were not used because they weren't applicable in the interaction were assigned the N/A label. The skills from these domains were evaluated as episodes (the entire interaction was considered, not individual responses), and based on the health care provider's judgment during the interaction, were used or not used if deemed unnecessary. All of these factors could contribute to lower Cronbach's alpha values for Health Interviewing and Motivation.

The items (*Expresses empathy*, *Supports self-efficacy*, *Rolls with resistance,* and *Develops discrepancy*) from the MI Principles domain are individual concepts that were not expected to highly correlate because they are separate concepts. For example, the health care provider can express good verbal and non-verbal empathy, but may never need to develop discrepancy during the brief interaction. Also, the fact that the skills measured by the items *Rolls with resistance* and *Develops discrepancy* are the items most frequently labeled with N/A may explain the Cronbach`s alpha value of -0.08.

It is worth noting that all items of the MISHCE were assigned to their respective domains based on theory from the literature, the opinions of the expert panel, and also based on the rationale that the instrument needed to be practical for use. Thus, it is likely that assigning the items based on the literature and the opinion of the expert panel and making the instrument more user-friendly affected the internal consistency reliability results of the MISHCE.

*Inter-rater reliability.* The MISHCE also demonstrated good inter-rater reliability. According to the Cicchetti (1994) categorization system for evaluation of the significance of ICC, eight of the fifteen items (*Exhibits the 'Spirit of MI'*; *Elicits / addresses patient's understanding about the illness and / or treatment*; *Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition*; *Elicits / addresses patient's motivators and barriers for behavioral change*; *Reflects and affirms change talk*; *Supports self-efficacy*; *Uses reflective listening*; and *Moves smoothly through the interaction*) had excellent ICC values, five items (*Elicits / addresses patient's desired health outcomes / goals*; *Expresses empathy*; *Develops discrepancy*; *Uses open-ended questions*; and *Uses agenda setting*) had good ICC values, one item had fair ICC value (*Rolls with resistance*), and one item had poor ICC value (*Resists the righting reflex*).

*Test-retest reliability.* The test-retest reliability, or the consistency of the ratings among all five raters between the first and the second use of the MISHCE, demonstrates that three of the five raters (rater 3 = 1.00, rater 4 = 0.78, and rater 5 = 0.96) have excellent median of ICC values, and the other two (rater 1 = 0.61 and rater 2 = 0.70) have good median of ICC values. This demonstrates the MISHCE's good test-retest reliability. The standard error of measurement (SEM) values were reported to help the reader obtain a better understanding of the magnitude of error between the first and the second use of the assessment tool by each rater individually. The SEM values were consistent with the ICC values, with raters' magnitude of error being rater 3 = 0.00, rater 5 = 0.05, rater 4 = 0.25, rater 2 = 0.39, and rater 1 = 0.40. The Person *r* product moment correlation coefficient was calculated as well, and the median of the Pearson *r* (magnitude of relationship) demonstrates that four raters (rater 2 = 0.56, rater 3 = 1.00, rater 4 =

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0.66, and rater 5 = 0.92) have a large magnitude of the relationship between the scores in their first and second use of the instrument, and one rater (rater 1 = 0.49) has a medium magnitude.

The results for the test-retest reliability demonstrate that rater1 and rater 2 were less consistent in their evaluation of skills when using the instrument. To better-understand this result, the raw data were examined more closely. The results suggest that two raters were more inconsistent in their ratings. Rater 1 was more inconsistent in his/her ratings on the items *Exhibits the 'Spirit of MI'* and *Expresses empathy*. One explanation is that the *spirit of MI* and empathy are two complex and multidimensional concepts with many similarities. Rater 2 assigned the category Developing during the first use of the instrument, and the category N/A during the second use, for the item *Rolls with resistance*. This is one example of the inconsistency in this item and this rater. Nonetheless, it is difficult to make assumptions regarding the possible causes of inconsistent ratings.

**Limitations and Considerations**

While developing the MISHCE, every effort was made to minimize potential limitations of this assessment tool, and the entire research project. Attending the AU MITI training provided the researcher with a solid understanding of the training process and the strategies used by the trainers. Knowledge was also obtained about the learning process and the use of MI skills in trainees. Thus, the instrument was constructed keeping in mind the training and learning process specific to AU MITI. It is worth noting that the MISHCE contains items that measure MI skills used in health care encounters, and items that measure skills that participants attending the AU MITI are trained to acquire. While this contributes to the uniqueness of the MISHCE, it also limits the generalizability of its use.

In the future, the psychometric properties of the MISHCE should be investigated with different samples and settings, and potentially with a variety of types of encounters in terms of patients and conditions/target behaviors. This would help to examine the results and potentially substantiate greater generalizability of the use of this instrument. In addition, it would be very beneficial to further examine what potential reasons lay behind the lower inter-rater reliability and the lower test-retest reliability of some of the raters.

The sample used for the purpose of the development of the MISHCE was a convenience sample. All of the interactions used were from the AU MITI training, which occurred during the 2006-2007 and 2007-2008 academic years. This poses another limitation. An important consideration is that the observed interactions did not occur in real health care settings with real patients. All 88 interactions were mock interactions with standardized, trained patients. This limits full understanding of the practical use of the MISHCE in real health care and/or research settings. To assure that the MISHCE would be practical for use in real health care settings and/or research, the expertise of clinicians trained in MI who also had experience in working with patients in health care settings was utilized. While this lends some depth to the development and application of the instrument, it would certainly contribute significantly to the instrument to test its applicability in realistic care delivery and/or research settings.

Also, in terms of sample size, the existing literature recommends that the sample size should be six to ten times larger than the number of items. The sample size in this study approaches this recommendation. It would be beneficial for the internal consistency reliability of the MISHCE to be examined with a larger sample size than the one used in this study.

Another consideration is that for the purpose of the study, raters were chosen through convenience sampling. Four of the five raters were either trainers or had attended the AU MITI

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training, and were familiar with the training process at the institute and the MI concepts covered during the training. Familiarity with the concepts contributed to the good inter-rater reliability. This further supports the importance of adequate and high quality training in establishing inter-rater reliability.

A very important consideration is that the rating scale used in the MISHCE has three levels: Deficient, Developing, Accomplished, as well as the N/A category. The categories Deficient, Developing, and Accomplished suggest an ordinal measure. The N/A category exists as its own category-a nominal measure. Coding the N/A category in raw data entry posed challenges. It is also likely that using this category posed challenges for the raters. Although the most suitable coding system was used, lower ICC values for inter-rater reliability for the *Rolls with resistance* and *Resists the righting reflex* items, as well as negative ICC values for test-retest reliability, affected the results. More research is necessary to examine the effect of the N/A category on the results.

Factor analysis would typically be conducted in a study that involves the development of a new instrument. It was decided not to rely on factor analysis for rubric development, within the scope of this study, for several reasons. First, some of the MI skills are multi-dimensional. Second, at times, a certain skill will be used, and at other times it will not be used, and both would be appropriate. Third, the use of skills is dependent on the interaction, the patient or the provider (the interaction was brief and a mock patient followed a specific scenario). Fourth, the instrument was primarily developed based on theory and existing instruments. Fifth, the "N/A" category was used, and affected the coding of the data. The sixth reason was the sample size.

To see what results a factor analysis would bring, exploratory factor analysis was performed. The first performed step was factor extraction. Based on the absolute magnitude of

the eigenvalues of factors and the relative magnitude of eigenvalues, two factors could have been chosen. The second step was to orthogonally rotate the factors. The rotation demonstrated those items that would fall in the first and those that would fall in the second factor (Green & Salkind, 2003; Child, 1990). These results do not support the original intent to divide the items in five domains based on practical organization of the domains and the items.

One consideration is that criterion validity, incremental validity, and discriminant validity were not examined as they were deemed to be outside of the scope of this study. Future research should examine support for these types of validity as well. The MISHCE items should be compared with the items of other instruments that measure the same concepts to assist in this endeavor.

One last consideration is the comprehensiveness of training of the raters on how to use the MISHCE prior to evaluating interactions. It is recommended that regardless of setting or purpose, that raters should be trained thoroughly and systematically (e.g., more hours of training, allowing time for raters to review the manual and ask questions about the skills, evaluating several interactions for the purpose of practice) to support a  greater likelihood for congruent inter-rater and test-retest reliability.

**Significance of the MISHCE**

MISHCE is designed to evaluate health care providers trained in MI whose work is focused on comprehensive disease management and improvement of clinical outcomes.  As previously mentioned, several items in the MISHCE were specifically reflective of the use of MI in health care encounters (*Elicits / addresses patient's understanding about the illness and / or treatment*; *Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition*; and *Elicits / addresses patient's motivators and barriers for behavioral change*).

These items have added to the uniqueness of the MISHCE and emphasize its specificity in evaluation of MI skills in health care encounters.

Another element that makes the MISHCE unique is that while it evaluates the health care provider's skills and knowledge, it also has an item that evaluates the "flow" of the interaction (*Moves smoothly through the interaction*). This item evaluates how well the health care provider follows the patient. The flow of an interaction is only one variable that contributes to the quality of the interpersonal interaction. Future research should involve further examination of how other variables contribute to the quality and outcome of the interpersonal interaction. Nonetheless, adding this item could contribute to a better understanding of the quality of very brief interactions in health care settings where time is limited.

The MISHCE has a unique format and is scored in a unique way, compared to existing instruments used for assessing MI skills. Unlike the existing instruments that use a Likert scale, MISHCE has the format of the rubric. The assessment tool has three levels of rating (Deficient, Developing, and Accomplished) often used in rubrics across measurement types and scopes. The items from the first three domains, MI Philosophy, Health Interviewing, and Motivation are assessed through a global score; and for the items in the MI Principles and Interpersonal Process domains, each behavior is rated as either Deficient, Developing, Accomplished, or N/A. As described in the manual, based on the needs of the users of the MISHCE, a final score can be assigned to the trainee if it is necessary to assign a score (e.g., in training, assessing, grading students). The manual describes the steps for scoring each item and calculating the final score as a percentage. The scoring system was created as the most appropriate system, considering that some skills would be evaluated globally and others via behavioral counts. The final score or percentage can be used in evaluating performance of students or trainees and assigning a specific

grade. However, the rubric also allows for qualitative feedback to students or trainees on their performance. This feedback can certainly be more meaningful to both the provider of the feedback and the students/trainees as they learn what aspects of a certain skill they need to improve upon. For example, a trainee in MI may receive global or specific feedback on how well developed the skill "Expresses empathy" is and what specific behaviors the trainee may need to improve upon to develop this skill.

One of the challenges in the development of the MISHCE, was to find an accurate and practical way of assessing multidimensional concepts and complex skills such as empathy or the *spirit of MI*. Due to their multidimensional nature, complex skills are difficult to measure with one item. The manual and the examples of MI adherent and MI non-adherent behaviors document (Appendix E) add to the uniqueness of the MISHCE in that they provide examples and describe behaviors that characterize each measured skill.

Assessment of multidemential concepts and complex skills has always posed a challenge for researchers (Madson & Campbell, 2006). Measuring skills via behavioral counts has been a common approach of existing instruments. With this in mind, the study used the more objective approach of behavioral counts (nine MISHCE items) along with a more subjective rubric approach of global evaluation of skills (six MISHCE items) for development of the MISHCE. The combined approach adds to the uniqueness of this instrument. For the items that were evaluated using behavioral counts, most ICC values for the inter-rater reliability were satisfactory. Three of those nine items fall in the category "excellent", four in the category "good" and one in the category "fair", and one in the category "poor". For the globally evaluated items all ICC values were satisfactory. Five of the six items fall in the category "excellent" and one in the category "good".

**The MISHCE vs. Existing Instruments**

When comparing the utility and psychometric properties of the already existing instruments (see Table 1) with the MISHCE, several observations can be drawn. For the MISC, the ICC values for inter-rater reliability for both the behavioral counts and the global items fall within a wide range (poor to excellent). For the MITI, the ICC values for inter-rater reliability for the behavioral counts are higher (fair to excellent), and fair for the global ratings (Madson & Campbell, 2006). In comparison to the two instruments, the MISHCE demonstrates higher ICC values for the skills evaluated globally (good to excellent); however, the ICC values for the skills evaluated based on behavioral counts fall within a wide range (poor to excellent).

Similarly to the BECCI and the MIPC, the MISHCE is appropriate for use in brief patient-provider interactions. The advantage of the MISHCE is that it is appropriate for use of MI in health care settings, while the BECCI was specifically used with practitioners in Behavior Change Counseling (not in MI), and the MIPC was used with social workers in the field of substance abuse. However, unlike the MISHCE, the BECCI and the MIPC do not use behavioral counts (Lane et al., 2005; Barsky & Coleman, 2001).

The MISC is the only current measure that evaluates both the patient and the provider. Similarly to the MISTS, MITI and MIPC, the MISHCE primarily focuses on the skills of the provider. In comparison to the MITI and MISTS, for establishing the psychometric properties of the MISHCE, raters with knowledge and experience in application of MI were used (Moyers, Martin, et al., 2005; Lane et al., 2005; and Madson & Campbell, 2006). The uniqueness of the MISHCE is that raters were selected because of their experience of use of MI in health care settings. Lastly, the interactions used for the development of the MISHCE were videotaped. The interactions in the majority of the existing measures were audio taped (Moyers, Martin, et al.,

2005; Lane et al., 2005; and Madson & Campbell, 2006). Videotaped interactions had the advantage of allowing the raters to observe and evaluate nonverbal behaviors of the provider necessary in the use of MI in brief interactions. For example, the skill "Expresses empathy" consist of verbal and non-verbal components. An audio-taped interaction would not allow evaluation of the non-verbal components.

**Current and Future Use of the MISHCE**

The MISHCE was designed to assess the health provider's level of knowledge and skills in brief disease management encounters. Considering that with this study, most of the psychometric properties of the MISHCE have been established; various venues for use of this instrument can be considered. One venue is the Harrison School of Pharmacy at Auburn University. Once the psychometric properties of the MISHCE were established, the instrument was used to evaluate pharmacy students at the School of Pharmacy. First-year students enrolled in the Patient-Centered Skills (PYPC 5010) course were exposed to theory in MI and practical application of MI skills, among other content. At the end of the fall 2010 semester, students had the opportunity to demonstrate their knowledge and skills in MI through a brief interaction with a mock patient. The MISHCE was used in the students' evaluation of MI skills used in this interaction. The use of the MISHCE in the classroom setting has set the stage for further examination of the application of this instrument with health professions students across the country.

Other venues for practical application of the MISHCE are training programs and workshops in MI designed for health care professionals already working with patients in health care settings. While the MISHCE was developed based on the training of health care professionals at AU MITI, using this instrument in other training programs to train health care

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providers in MI is a desirable goal. Because the MISHCE is tailored to measure acquisition of MI skills, it would be useful to examine possible similarities and differences in how MI skills are acquired and applied in experienced health care providers vs. pharmacy students. It would also be beneficial to use the MISHCE in examining how the nature of the training (e.g., semester-long course vs. intense workshop training) and the nature of the interaction (e.g., mock patient vs. real patient) affect the process of MI skills acquisition and the application of MI skills during the interaction. In terms of the nature of the training, the MISHCE can be implemented in research focused on how various aspects of the training (length of training, advanced training following initial training, etc.) affect the learning outcomes of trainees, and in the evaluation of the effectiveness of certain training programs. The MISHCE may also exhibit considerable utility as a practical tool to assess intervention fidelity within the scope of a research study examining an MI-based intervention. An example of this type of research study would be examining the effectiveness and efficacy of MI in improving treatment adherence/life style changes of diabetes patients.

Trainers, instructors and supervisors may also find the MISHCE useful in the process of training, supervision, and evaluation of trainees in MI. The manual for this instrument contains examples of how a trainee may respond in the interaction with a patient in an MI adherent fashion. The manual does not attempt to provide an exhaustive list of possible example responses, but can be a useful guide to individuals who are in the process of learning how to train and supervise. It can also be very useful to trainees with limited or no experience in direct interactions with patients. The examples of MI adherent and MI non-adherent behaviors document serves a similar purpose (Appendix E). It consists of numerous examples of behaviors that describe each MI skill measured by the MISHCE. Thus, it can be useful to individuals who

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are in the process of learning how to use the MISHCE, and specifically to individuals who are in

the process of learning about MI.

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**Appendix A**

**Table 1**

**Table 1.**

*Characteristics of The Included Studies*

| Author | Name of assessment tool | Reliability Method | Psychometric properties | |
|---|---|---|---|---|
| | | | **Reliability Results** | **Validity** |
| *Miller et al., 2003* | Motivational Interviewing Skill Code (MISC) | Inter-rater reliability (ICC- Intraclass correlation) | ICCs were 0.39 for the therapist scale, 0.53 for the client scale, and 0.51 for the interaction scale. ICCs were from 0.25 to 0.79 for the global items and from 0.00 to 1.00 for the behavioral counts. | Construct validity was established by having independent raters. |
| *Moyers et al., 2005* | Motivational Interviewing Treatment Integrity Scale (MITI) | Inter-rater reliability (ICC- Intraclass correlation) | ICCs of the global ratings were 0.51 for empathy/understanding and 0.58 for spirit of MI. ICCs for the behavioral counts ranged from 0.57 to 0.96. | The validity of MITI was established through a canonical correlation between the MISC and the MITI items. Convergence was concluded. |
| *Lane et al., 2005* | Behavior Change Counseling Index (BECCI) | Internal consistency reliability (α-Cronbach's Alpha) Inter-rater reliability Intra-rater reliability | The mean inter-item correlation for core item was 0.22 for the baseline consultations and 0.14 for the final consultations. Cronbach's Alpha for the baseline consultations was α = 0.71, and α = 0.63 for the final consultations. Good level of Inter-rater reliability. Moderate to good level of intra-rater reliability. | Ensured content validity, face validity and construct validity. |
| *Barsky & Coleman, 2001* | Motivational Interviewing Process Code (MIPC) | Agreement % (Inter-rater reliability ) | Inter-rater reliability was 51% for the functional skills subscale and 75% for the dysfunctional skills subscale. | Not listed |
| *Madson et al., 2005* | Motivational Interviewing Supervision and Training Scale (MISTS) | ρ2-generalizability coefficient | Inter-rater reliability -generalizability coefficient was 0.79. | Evidence was found supporting the convergent and discriminant validity. |

*Note*. From:
Madson, M. B., & Campbell, T. C. (2006). Measures of fidelity in motivational enhancement: A systematic review. Journal of Substance Abuse Treatment, 31(1), 67-73. Lane, C., Huws-Thomas, M., Hood, K., Rollnick, S., Edwards, K., & Robling, M. (2005). Measuring adaptations of motivational interviewing: The development and validation of the Behavior Change Counseling Index (BECCI). Patient Education and Counseling, 56(2), 166-173. Moyers, T. B., Martin, T., Manuel, J. K., Hendrickson, S. M., & Miller, W. R. (2005). Assessing competence in the use of motivational interviewing. Journal of Substance Abuse Treatment, 28(1): 19-26. Barsky, A., & Coleman, H. (2001). Evaluating skill acquisition in motivational interviewing: The development of an instrument to measure practice skills. Journal of Drug Education, 31(1), 69-82.

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Table 1 (continued).

*Characteristics of The Included Studies*

| | Summary | |
|---|---|---|
| **Advantages** | **Considerations/Limitations** |
| Sensitive to detect changes after the training. Useful for analyzing the interaction between clients and therapists. | Length of the instrument; complexity/time consuming; not cost-effective; length of training of raters. Reliability index varies between the overall domains (behavioral vs global counts). |
| Less comprehensive coding system-some of the behaviors are fused in one category. Only one pass. | MITI assesses MI-relevant clinician attributes such as empathy and use of microskills, but does not focus on elicit change talk. Reliability coefficients for the two global items, empathy/understanding and spirit of MI, are considered fair. |
| Responsiveness of BECCI-could detect change in practitioner performance before and after training. | Validity and reliability were evaluated on simulated consultations; it may not be reliable in real consultations. Only practitioner behavior was evaluated. More research needs to be done to confirm that BECCI scores can be linked to behavior changes in patients. |
| Less time consuming because it requires reviewing the brief interaction only once. | Assesses adherence more than quality of MI. The authors did not define the criteria for determining what it means to be an expert in MI. Language was identified by the professionals rather than the literature. This poses a threat to validity and reliability. |
| Solid psychometric properties. Appropriate for use in training, supervision, and research settings. | Many of the items consisted of multidimensional behavioral indicators that possibly contributed to lower reliability between raters. |

*Note.* From:

Madson, M. B., & Campbell, T. C. (2006). Measures of fidelity in motivational enhancement: A systematic review. *Journal of Substance Abuse Treatment, 31*(1), 67-73. Lane, C., Huws-Thomas, M., Hood, K., Rollnick, S., Edwards, K., & Robling, M. (2005). Measuring adaptations of motivational interviewing: The development and validation of the Behavior Change Counseling Index (BECCI). *Patient Education and Counseling, 56*(2), 166-173.

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**Appendix B**

**Panel of Experts Review Form**

## Panel of Experts Review Form

**Item Evaluation**

1. Please indicate to what extent each item is appropriate for the Motivational Interviewing Skills Rubric. For each item in the following sections, select the response that most closely expresses your opinion: "1" indicates that the item "Needs Improvement", "2" indicates that the item is "Satisfactory" and "3" indicates that the item is "Exemplary".

2. Please describe the strengths and weaknesses of each item.

3. Please indicate: "a" keep item as it is, "b" remove item, "c" should be broken into two items, "d" should be merged into one item.

| Item number | *1.* *Overall rating of the item* | *2a.* *Strengths* | *2b.* *Weaknesses* | *3.* *Choose "a", "b", "c" or "d"* |
|---|---|---|---|---|
| 1 | | | | |
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| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
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| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |

**Panel of Experts Review Form-The Rubric**

**Detailed Assessment** - To what extent are the following indicators evident in Motivational Interviewing Skills Rubric?
For each item in the following sections, select the response that most closely expresses your opinion: "1" indicates that the standard is "Not Evident", "2" indicates that the standard is "Somewhat Evident" and "3" indicates that the standard is "Clearly Evident".

| *Standard* | *Not Evident 1* | *Somewhat Evident 2* | *Clearly Evident 3* |
|---|---|---|---|
| Conceptual definitions | | | |
| 1. The conceptual definitions accurately represent the concept/construct under investigation. | | | |
| 2. The conceptual definitions are understandable. | | | |
| 3. The conceptual definitions are based on the existing literature of the concept/construct under investigation. | | | |
| 4. The conceptual definitions cover the concept/construct under investigation in depth. | | | |
| *Strengths/Weaknesses/Comments* | | | |
| Operational definitions | | | |
| 1. The operational definitions accurately represent the concept/construct under investigation. | | | |
| 2. The operational definitions are understandable. | | | |
| 3. The operational definitions are based on the conceptual definitions. | | | |
| 4. The operational definitions cover the concept/construct under investigation in depth. | | | |

| | | | |
|---|---|---|---|
| *Strengths/Weaknesses/Comments* | | | |
| Correlation between conceptual definitions and operational definitions | | | |
| 1. The correlation between conceptual definitions and operational definitions is evident. | | | |
| 2. The operational definitions originate from conceptual definitions. | | | |
| *Strengths/Weaknesses/Comments* | | | |

**Panel of Experts Review Form-Open Ended Questions**

| **Please give your opinion regarding the following:** |
|---|
| 1. Please indicate whether the global score in the rubric should be present in the assessment tool (instrument) or not. |
| *Comments* |
| 2. Please indicate whether in your opinion all the items in the assessment tool (instrument) "weight" the same or if there are items that are more important than other items, for example: "core" items and "noncore" items. |
| *Comments* |
| 3. Please respond how a rater should evaluate a specific skill measured by a certain item that was not demonstrated in the interaction because of lack of time or because or other interaction-related factors, but not because the trainee did not know how to use that skill. |
| *Comments* |
| 4. Please state if there is anything else that needs to be excluded/included in the assessment tool (instrument) or the manual. |
| |
| 5. Please provide us with your personal information (Name, Title, Affiliation, Date of filling the Panel of experts form and a Paragraph with information about your previous training in MI and your area of application of MI). |
| |

*Note.* Yamashiro, K & Zucher, A. (1999). *An expert panel review of the quality of virtual high school courses: final report.* Retrieved from http://ctl.sri.com/publications/downloads/vhsexprt.pdf

**Appendix C**

**Motivational Interviewing Skills for Health Care Encounters - MISHCE**

# Motivational Interviewing Skills for Health Care Encounters – MISHCE

| Trainee: | Evaluator: | Date: |
|---|---|---|

**Rating**

0=Deficient (MI-adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

1=Developing (MI-adherent skill partially present, or skill is present on a basic/simplistic level)

2=Accomplished (MI-adherent skill is well developed and sophisticated)

N/A= Not applicable (MI-adherent skill not evident and not necessary for facilitating the interaction)

**Specific Guidelines:**

- For each skill choose only one of the four options from the scale above.

- Use N/A (Not applicable) when, based on your evaluation, a certain skill was not evident in the interaction and it was not necessary for the trainee to use that skill to further facilitate the interviewing process.

- Ratings should capture only the health care provider behavior during the interaction.

- The skills in the domains MI Philosophy, Health Interviewing and Motivation are evaluated on a three-point rating scale. The three rating points are Deficient, Developing and Accomplished. Evaluate each skill of these three domains as an episode that occurs during the interaction rather than a certain behavior. Focus on the quality of the episode as a whole. Mark "X" in one of the four boxes to the right of the item (skill), depending on whether you have evaluated the skill as "Deficient", "Developing", "Accomplished" or "N/A".

- The skills in the domains MI Principles and Interpersonal Process are evaluated on the same three-point rating scale: Deficient, Developing, or Accomplished. Evaluate each skill of these domains based on behavioral occurrences demonstrated by the trainee. When noticing that the trainee has demonstrated the behavior, mark "X" in one of the four boxes to the right of the item (skill), depending on whether you have evaluated the behavioral occurrence as "Deficient", "Developing", "Accomplished" or "N/A".

| MI PHILOSOPHY | Deficient | Developing | Accomplished | N/A |
|---|---|---|---|---|
| Exhibits the 'Spirit of MI' | | | | |
| **HEALTH INTERVIEWING** | Deficient | Developing | Accomplished | N/A |
| Elicits / addresses patient's understanding about the illness and / or treatment | | | | |
| Elicits / addresses patient's awareness of susceptibility / risk of uncontrolled illness / condition | | | | |
| Elicits / addresses patient's desired health outcomes / goals | | | | |
| **MOTIVATION** | Deficient | Developing | Accomplished | N/A |
| Elicits / addresses patient's motivators and barriers for behavioral change | | | | |
| Reflects and affirms change talk | | | | |
| **MI PRINCIPLES** | Deficient | Developing | Accomplished | N/A |
| Expresses empathy | | | | |
| Supports self-efficacy | | | | |
| Rolls with resistance | | | | |
| Develops discrepancy | | | | |
| **INTERPERSONAL PROCESS** | Deficient | Developing | Accomplished | N/A |
| Resists the righting reflex | | | | |
| Uses reflective listening | | | | |
| Uses open-ended questions | | | | |
| Uses agenda setting | | | | |
| Moves smoothly through the interaction | | | | |

**Appendix D**

**Manual**

**MANUAL**

for the use of the

Motivational Interviewing Skills for Health Care Encounters – MISHCE

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Auburn University

2011

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## Table of Contents

**Overview**

Motivational Interviewing (MI) is a complex, multi-dimensional way of being and communicating with a person to help the person decide to change a health behavior. It is important that the person evaluating a trainee for MI skills acquisition is fully and extensively trained in MI.  This manual for MI evaluation in no way takes the place of training in MI concepts and skills that is needed for effective evaluation.

This manual describes the structure, scope of use, and scoring of the Motivational Interviewing Skills for Health Care Encounters – MISHCE. The manual serves as a guide to those who wish to use this assessment tool in evaluating the level of acquisition of Motivational Interviewing (MI) knowledge and skills of healthcare professional trainees in MI.

The assessment tool is structured into five domains related to MI. These domains have been chosen based on the literature and expert panel input. Each of the five domains consists of a set of skills used during the process of MI, and each set of skills is closely related to its domain. The five domains include: *MI Philosophy, Health Interviewing*, *Motivation*, *MI Principles*, and *Interpersonal Process*.

The ***MI Philosophy*** domain consists of the following MI skill: Exhibits the Spirit of MI.

The ***Health Interviewing*** domain consists of the following MI skills: Elicits/addresses the patient's understanding about the illness and/or treatment; Elicits/addresses the patient's awareness of susceptibility/ risk of uncontrolled illness/condition; and Elicits/addresses the patient's desired health outcomes/goals.

The ***Motivation*** domain consists of the following MI skills: Elicits/addresses the patient's motivators and barriers for behavioral change and Reflects and affirms change talk.

The **MI Principles** domain consists of the following MI skills: Expresses empathy; Supports self-efficacy; Rolls with resistance and Develops discrepancy.

The **Interpersonal Process** domain consists of the following MI skills: Resists the righting reflex; Uses reflective listening; Uses open-ended questions; Uses agenda setting and Moves smoothly through the interaction.

Each skill under each domain can be described by behaviors that the health care provider/trainee needs to engage in to demonstrate the presence of that specific MI skill. MI skills can differ from one another in terms of their complexity and the number of behaviors that describe them. Some skills can be described by fewer behaviors, while others by a number of behaviors. All skills are equally important as they equally contribute to the effectiveness of the interaction between the health care provider and the patient.

### Scoring Instructions

The format of the instrument is an analytic rubric, meaning the instrument has the format of a rating scale consisting of pre-established descriptive scoring criteria. Each item on the instrument measures a specific skill.

The skills in the domains MI Philosophy, Health Interviewing, and Motivation are evaluated on a three-point rating scale. The three rating points are Deficient, Developing, and Accomplished. The evaluator evaluates each skill of these three domains as an episode that occurs during the interaction rather than a certain behavior. Therefore, the evaluator focuses on the quality of the episode as a whole. The evaluator marks "X" one of the four boxes to the right of the item (skill), depending on whether he/she has evaluated the skill as "Deficient", "Developing", "Accomplished" or "N/A".

The skills in the domains MI Principles and Interpersonal Process are evaluated on the same three-point rating scale: Deficient, Developing, and Accomplished. However, each skill of these domains would be evaluated based on behavioral occurrences demonstrated by the trainee. The evaluator marks "X" in one of the four boxes to the right of the item (skill), depending on whether he/she has evaluated the behavioral occurrence as "Deficient", "Developing", "Accomplished" or "N/A". The three levels of measurement are described below.

Deficient (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction), Developing (MI adherent skill partially present or skill is present on a basic/simplistic level), and Accomplished (MI adherent skill is well developed and sophisticated). The descriptor Deficient is scored as zero, "0", indicating the absence of the specific MI adherent skill measured by the specific item. The descriptor Developing is scored as one, "1", indicating a medium level of acquisition of MI adherent skill. The descriptor Accomplished is scored as two, "2", indicating an evident presence of the MI adherent skill.

These descriptors are qualitative indicators of the level of development of each measured skill.  The rater (user of the rubric) scores each skill with "0", "1", or "2" every time the skill occurs. This means that it is possible that the trainee can display a certain skill more than once during the interaction. N/A does not indicate absence of a skill due to lack of knowledge, but simply means that the opportunity to present the skill did not occur and/or was unnecessary. The three levels should demonstrate not only the health care provider's competence and expertise in the skill, but also whether the skill is used at an appropriate time in the interaction.

The following are the instructions for calculating the percentage or overall performance grade, of each trainee. The grade is calculated via a mean score for each item, not including skills

scored as N/A. The mean "M" for each item is calculated by dividing the sum of scores on that item not including N/A scores, by the number of assigned scores. Then, all means on all scored items are summed to obtain the *Sum of means*. The next step is to sum all scored items (not including skills/items scored as N/A) to obtain the total number of scored items or the *Total Number* multiplied by two. The percentage is obtained when the *Sum of means* is divided by the *Total number* and the product is multiplied by one hundred.

The instrument consists of fifteen items. The items are grouped into the five domains listed above. Each item, with a brief description of what that item measures, and with the examples of MI adherent and MI non-adherent behaviors, is listed below. Each example included in the manual is only one possible example of how a certain skill is demonstrated. Each example serves the purpose of illustrating one possible way that an interaction between the health care provider and the patient can develop, or one possible way that the health care provider can behave/respond. In the process of using the instrument and evaluating trainees, it is likely that a rater would observe trainee's behaviors and responses not included in this manual.

## Skills Description

**Domain: MI Philosophy**

**1. Exhibits the *Spirit of MI***

**Explanation of skill:** The health care provider works together with the patient (collaboration), verbally acknowledges the patient's intrinsic strengths, abilities, and efforts for change (evocation), and respects the patient's right to make an informed choice (autonomy).

**MI adherent behaviors:** The health care provider collaborates with the patient; emphasizes the patient's freedom of choice; emphasizes the patient's autonomy; draws from the patient's strengths (values, knowledge, and skills) to help the patient explore change; does not use

patronizing, authoritarian, or advising tone of voice; acknowledges/addresses the patient's

misconceptions without violating face; attentive to addressing the patient's concerns.

**MI non-adherent behaviors:** The health care provider does not collaborate with the patient;

does not acknowledge the patient's freedom of choice; does not acknowledge the patient's

autonomy; does not draw from the patient's strengths (values, knowledge, and skills) to help the

patient explore change; uses patronizing, authoritarian, or advising tone of voice; violates face;

he/she is superficial, non genuine; discounts/ignores/generalizes the patient's concerns; uses

provider–centered agenda.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider works together with the patient (collaboration), verbally acknowledges

the patient's intrinsic strengths, abilities, and efforts for change (evocation), and respects the

patient's right to make an informed choice (autonomy).

**Example:**

> Patient: "I am tired of everyone telling me what to do! My wife wants me to quit smoking
>
> and change jobs because of the stress. My oldest son told me once that he wants me to be
>
> around and alive when his first child is born. They don't ever ask what it is like for me or
>
> what I've done so far. And with this economy, finding another job?! Yeah, right!"

> Provider: "It sounds like your family cares a lot about you, but they haven't asked you
>
> how you feel about what you want to do about your health. You as an adult are the one
>
> responsible for your health and your actions. Considering that it is your choice to create
>
> some changes, what are you willing to do, regardless of what your family thinks?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may engage in one, but not all of the three: collaboration, evocation, and autonomy.

**Example:**

> Patient: "I am tired of everyone telling me what to do! My wife wants me to quit smoking and change jobs because of the stress. My oldest son told me once that he wants me to be around and alive when his first child gets born. They don't ever ask what it is like for me or what I've done so far. And with this economy, finding another job! Yeah right!"

> Provider: "It sounds like your family has not asked for your perspective or how you feel about what you want to do about your health. Considering that it is your choice to create some changes, what are you willing to do, regardless of what your family thinks?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider does not engage in collaboration, evocation, and autonomy.

**Example:**

> Patient: "I am tired of everyone telling me what to do! My wife wants me to quit smoking and change jobs because of the stress. My oldest son told me once that he wants me to be around and alive when his first child gets born. They don't ever ask what it is like for me or what I've done so far. And with this economy, finding another job?! Yeah, right!"

Provider: "Your family means well–it's clear that they love you and want what's best for you. Can't you see that they're not against you?"

**Domain: Health Interviewing**

**1. Elicits/addresses the patient's understanding about the *illness and/or treatment***

**Explanation of skill:** The health care provider elicits/addresses the patient's understanding about the illness and/or treatment.

**MI adherent behaviors:** The health care provider engages in a conversation with the patient that leads the patient to fully express his/her understanding of the *illness*; engages in a conversation with the patient that leads the patient to fully express his/her understanding of the *treatment*; informs the patient to fill knowledge gaps; uses language that the patient can understand and that meets the patient's literacy level.

**MI non-adherent behaviors**: The health care provider does not ask questions to explore the patient's understanding of the *illness;* does not ask questions to explore the patient's understanding of the *treatment*; does not inform the patient to fill knowledge gaps; uses language that the patient cannot understand and is above the patient's literacy level.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider engages in a conversation with the patient that leads the patient to fully express his/her understanding of the illness/treatment.

**Example:**

> Patient: "The test results show that I have an ulcer, right? I just can't understand why I have to be on all these medications."

Provider: "It sounds like you're concerned about the medications.  If you don't mind, I'd like to talk about that for a few minutes. First, tell me what you know about having an ulcer?"

Patient: "I know that one of my cousins has been treated for one, but I don't know much about how we get it."

Provider:  "An ulcer is a sore on the lining of your digestive tract. The main cause of an ulcer are elevated levels of the bacteria called Helicobacter Pylori. Tell me what you know about how an ulcer is treated."

The health care provider then affirms what the patient knows and asks permission to fill in the gaps in knowledge.

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may start exploring the patient's understanding of the illness, but not the treatment, or vice versa. The patient does not get the opportunity to talk about his/her understanding of both.

**Example:**

Patient: "The test results show that I have an ulcer, right? I just can't understand why I have to be on all these medications."

Provider: "What have you heard or know about ulcers?"

Patient:  "I know that one of my cousins has been treated for one, but I don't know much about how we get it."

The health care provider explains how an ulcer forms and then says,

> Provider: "The medication you were prescribed is commonly used to treat an ulcer and it is very effective."

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to ask questions to explore the patient's understanding of the illness/treatment.

**Example:**

> Patient: "The test results show that I have an ulcer, right? I just can't understand why I have to be on all these medications."

> Provider: "Being diagnosed with an ulcer is very serious. The medication you were prescribed is commonly used to treat an ulcer. Without it, the ulcer will not heal on its own."

**2. Elicits/addresses the patient's awareness of *susceptibility/risk* of uncontrolled illness/condition**

**Explanation of skill:** The health care provider elicits/addresses the patient's knowledge about what health risks the patient may suffer if he/she does not treat the illness/condition or does not engage in the target behavior.

**MI adherent behaviors:** The health care provider first asks what the patient knows and then asks for permission to fill in gaps in knowledge about the risks the patient may suffer if he/she does not engage in the target health behavior and does not receive treatment to improve clinical outcomes; informs the patient to fill knowledge gaps for major risks patient may suffer if illness/condition remains uncontrolled; uses language that the patient can understand and that meets the patient's literacy level.

**MI non-adherent behaviors:** The health care provider does not facilitate a conversation about the risks that the patient faces if he/she does not receive treatment or does not engage in the target behavior; does not inform to fill knowledge gaps for major risks patient may suffer if illness/condition remains uncontrolled; uses language that the patient cannot understand and is above the patient's literacy level.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider asks the patient for permission and thoroughly covers all the risks that the patient may suffer is he/she does not engage in health behavior and does not receive treatment.

**Example:**

The patient was recently diagnosed with an ulcer and clinically elevated levels of the bacteria Helicobacter pylori. The patient was prescribed several medications. At a follow-up meeting:

> Patient: "I decided not to take the medications that were prescribed. I'd like to try the
> 'natural' way of getting rid of the ulcer. I don't like taking too many medications. I have

also heard that stress can cause an ulcer. I think that once the stress at work decreases, my

ulcer will go away."

Provider: "It sounds like taking many medications concerns you. May I tell you what

concerns me?"

Patient: "Yes."

Provider: It is true that stress makes digestive problems worse; however, in your case, the

presence of Helicobacter pylori bacteria is the primary cause. Treatment of ulcer leads to

best outcomes when medication is used along with lifestyle changes.  Tell me your

understanding of the risks to your health if your ulcer is left untreated…."

Then the health care provider asks permission to fill in the knowledge gaps.

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider asks for permission to tell the patient about the risk he/she is under if

he/she does not receive treatment, but may not discuss the risks if patient does not engage in

behavioral change.

**Example:**

The patient was recently diagnosed with an ulcer and clinically elevated levels of the bacteria

Helicobacter pylori. The patient was prescribed several medications. At a follow up meeting:

Patient: "I decided not to take the medications that were prescribed. I'd like to try the

'natural' way of getting rid of the ulcer. I don't like taking too many medications. I have

also heard that stress can cause ulcer. I think that once the stress at work decreases, my ulcer will go away."

Provider: "Yes, it is true that stress exacerbates digestive problems, however, in your case, the Helicobacter pylori bacteria is the primary cause. May I tell you what risks you may suffer if we don't treat your ulcer with medications?"

The health care provider does not talk about what the risks are if the patient does not change his/her diet temporarily or manage stress and does not explore patient`s knowledge.

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to facilitate a conversation about the risk that the patient is under if he/she does not receive treatment or does not engage in healthy behavior.

**Example:**

The patient was recently diagnosed with an ulcer and clinically elevated levels of bacteria Helicobacter pylori. The patient was prescribed several medications. At a follow up meeting:

Patient: "I decided not to take the medications that were prescribed. I'd like to try the 'natural' way of getting rid of the ulcer. I don't like taking too many medications. I have also heard that stress can cause ulcer. I think that once the stress at work decreases, my ulcer will go away."

> Provider: "The therapy you were prescribed is the most common treatment for ulcer and elevated levels of Helicobacter pylori. Also, managing your level of stress will not help by itself."

**3. Elicits/addresses the patient's *desired health outcomes/goals***

**Explanation of skill:** The health care provider asks questions to obtain an understanding of the patient's perspective about her/his goals for health outcomes, and where the patient can see herself/himself regarding her/his health.

**MI adherent behaviors:** The health care provider asks about the patient's desired health outcomes/goals; does further exploration regarding how the patient feels about the goals; focuses on helping the patient explore how he/she can reach each of the identified goals.

**MI non-adherent behaviors:** The health care provider does not ask about the patient's goals; does no further exploration regarding how the patient feels about the goals; does not help the patient explore how he/she can reach the identified goals.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider not only asks about the patient's health goals, but also focuses on helping the patient explore how he/she can reach each of the identified goals.

**Example:**

> Provider: "Now that you have a better understanding of what these numbers mean and how they are related to your health, what are your thoughts about how this might impact your plans for your health?"

Patient: "Well, I have a cousin who was also diagnosed with diabetes a year ago and he started exercising for 20 minutes several times a week. I have thought of doing the same. I have had a hard time with changing my diet, although I want to."

Provider: "It is very hard to change your lifestyle as well as give up some foods that you enjoy eating. What I hear you saying, is that you want to start exercising and also change your diet. What are some ways that you can think of to overcome the challenge of making changes in the foods you eat and starting to get regular activity into your routine?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider asks about the patient's goals and may help the patient explore how he/she can reach one of the goals.

**Example:**

Provider: "How have you been thinking about your health since you were diagnosed with diabetes?"

Patient: "Well, I have a cousin who was also diagnosed with diabetes a year ago and he started exercising for 20 minutes several times a week. I have thought of doing the same. I have had a hard time with changing my diet, although I want to."

Provider: "It is very hard to change your lifestyle. What would be some ways that you can incorporate exercise into your routine?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider does not ask about the patient's goals and does no further exploration regarding how the patient feels about the goals.

**Example:**

> Patient: "I have a cousin who was also diagnosed with diabetes a year ago and he started exercising for 20 minutes several times a week. I have thought of doing the same. I have had a hard time with changing my diet, although I want to."
>
> Provider: "Yes, exercising sounds like a very good idea."

**Domain: Motivation**

1. **Elicits/addresses the patient's *motivators and barriers for behavioral change***

**Explanation of skill:** The health care provider is able to elicit the internal and external factors/variables that contribute to reducing or increasing the patient's motivation to engage in healthy behavior (e.g., barriers, challenges, lack of motivation, reasons to stay motivated, etc.)

**MI adherent behaviors:** The health care provider asks questions to elicit the internal and external factors/variables that contribute to reducing or increasing the patient's motivation to engage in healthy behavior (e.g., barriers, challenges, lack of motivation, reasons to stay motivated, etc.) and explores the factors further.

**MI non-adherent behaviors:** The health care provider does not elicit the internal and external factors that contribute to reducing or increasing the patient's motivation to engage in healthy

behavior (e.g., barriers, challenges, lack of motivation, reasons to stay motivated etc.); and does not explore the factors further.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider picks up on motivational factors that increase and decrease the patient's motivation.

**Example:**

The patient and the health care provider are talking about exercise as a way to manage weight.

> Patient: "None of us in my family are athletically inclined. I was never into sports when I was younger. Besides, I have such a hard time making myself go to the gym. I may try to take walks because I like the outdoors."

> Provider: "It sounds like you don't see yourself as someone who is good at exercising. It sounds like you are not a gym person and you like outdoor activities such as walking. What are some ways you can think of to incorporate walking into your routine?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider can pick up on some motivational factors.

**Example:**

The patient and the health care provider are talking about exercise as a way to manage weight.

Patient: "None of us in my family are athletically inclined. I was never into sports when I was younger. Besides, I have such a hard time making myself go to the gym. I may try to take walks because I like the outdoors."

Provider: "From what you are telling me it sounds like you don't see yourself as someone who is good at exercising and you are not too fond of the gym."

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to identify the important motivational factors that either reduce or increase the patient's motivation to change.

**Example:**

The patient and the health care provider are talking about exercise as a way to manage weight.

Patient: "None of us in my family are athletically inclined. I was never into sports when I was younger. Besides, I have such a hard time making myself go to the gym. I may try to take walks because I like the outdoors."

Provider: "Have you thought about setting up a system for rewarding yourself for going to the gym?"

**2. Reflects and affirms** *change talk*

**Explanation of skill:** The health care provider responds when the patient uses change talk (e.g., expressing desire to change behavior, making plans to engage in healthy behaviors, making plans to maintain healthy behavior, talking about the benefits of the change, talking about previous

successes with the target behavior, etc.) and encourages/supports the patient's change talk.

**MI adherent behaviors:** The health care provider responds when the patient uses change talk; encourages/supports/reinforces the patient's change talk.

**MI non-adherent behaviors:** The health care provider does not respond when the patient uses change talk; does not encourage/support/reinforce the patient's change talk.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider recognizes change talk and encourages the patient to engage in more change talk.

**Example:**

> Patient (has recently been diagnosed with diabetes): "My cousin who was also diagnosed with diabetes a year ago has started exercising for 20 minutes several times per week. I have thought of doing the same."
>
> Provider: "It sounds like you have given exercising a serious thought and you want to start exercising several times a week. Tell me more about how you plan to work exercising into your routine?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider recognizes change talk, but may not go further to encourage the patient to engage in more change talk.

**Example:**

> Patient (has recently been diagnosed with diabetes): "My cousin who was also diagnosed with diabetes a year ago has started exercising for 20 minutes several times per week. I have thought of doing the same."
>
> Provider: "It sounds like you have given exercising a serious thought and you want to implement exercise in your lifestyle. That is very good. How are you doing with the medication?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to recognize and encourage the patient's change talk during the interaction.

**Example:**

> Patient (has recently been diagnosed with diabetes): "My cousin who was also diagnosed with diabetes a year ago has started exercising for 20 minutes several times per week. I have thought of doing the same."
>
> Provider: "How are you doing with the medication?"

**Domain: MI Principles**

**1.** *Expresses empathy*

**Explanation of skill:** The health care provider verbally and non-verbally communicates empathy through accepting and understanding the patient's perspective without judging or evaluating the patient in any way. The health care provider should express empathy not only verbally, but also non-verbally. The tone of her/his voice, facial expression and body gestures should demonstrate engagement, acceptance, and understanding of the patient's experience. Note: Acceptance does not necessarily mean approving of or agreeing with the patient's perspective or behavior.

**MI adherent behaviors:** The health care provider verbally communicates non-judgmental acceptance; verbally communicates an understanding of the patient's feelings or perspective; non-verbally communicates an understanding of the patient's feelings or perspective (responds to patient direct expression of emotion; uses a warm and inviting tone of voice; uses direct eye contact; leans toward the patient; nods when listening to the patient).

**MI non-adherent behaviors:** The health care provider does not verbally communicate an understanding of the patient's feelings or perspective; misses opportunities to respond to an expressed patient emotion; gives superficial responses and changes subject; does not non-verbally communicate an understanding of the patient's feelings or perspective (uses an authoritarian tone of voice; is judgmental, shaming or disinterested; does not use direct eye contact; does not lean toward the patient; does not nod); uses only "I see", "ok", "aha", "right', "I understand", or other fillers, but does not follow up with an empathic statement.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider understands the patient's feelings and perspective, is non-judgmental, and expresses empathy, both verbally and non-verbally, every time the possibility occurs.

**Example:**

A patient tells the health care provider that she experiences very unpleasant side effects from her medication and decided to quit taking the medication, even though she was warned by her doctor that side effects would occur and was told to keep taking the medication because the side effects would eventually go away. The health care provider hears the patient's story and exhibits facial expression that communicates he/she understands how unpleasant the medication side effects could have been for the patient.

> Provider: "That must have been very difficult for you to have experienced the side
>
> effects. I am also hearing that you may be concerned that you stopped taking the
>
> medication and that you are not currently receiving any treatment for your condition."

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider health care provider may not be judgmental, but at times fails to fully grasp the patient's feelings or experience. The health care provider expresses verbal, but not non-verbal empathy, or vice versa. The health care provider expresses verbal and non-verbal empathy, but does not use this skill every time when a possibility occurs.

**Example:**

A patient tells the health care provider that she experiences very unpleasant side effects from her medication and decided to quit taking the medication, although she was warned by her doctor that side effects would occur and was told to keep taking the medication because the side effects

would eventually go away. The health care provider hears the patient's story and has a non-verbal facial expression that communicates that she/he understands how unpleasant the medication side effects could have been for the patient.

> Provider: "I see, I am so sorry that you experienced these side effects."

The health care provider does not pick up on the patient's feeling of fear for having stopped the medication despite doctor's orders.

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to express empathy, both verbally and nonverbally. The health care provider is judgmental and fails to understand the patient's feelings or perspective.

**Example:**

A patient tells the health care provider that she smokes half a pack of cigarettes per day and has been frustrated with the difficult time she has had in trying to quit, and has tried several times.

> Provider: "You really should not be smoking; smoking has horrible consequences for women's health."

The health care provider does not pick up on the patient's own frustration with having a difficulty with quitting and makes no attempt to try to understand what has made it difficult for the patient to quit, and maintains a closed body stance during the interaction.

**2.** *Supports self-efficacy*

**Explanation of skill:** The health care provider verbally encourages the patient to believe in his/her ability to change a certain behavior and acknowledges when the patient talks about change or has made efforts to change.

**MI adherent behaviors:** The health care provider verbally encourages the patient to have faith in his/her ability to carry out the healthy behavior; acknowledges when the patient talks about or makes efforts to change; encourages the patient to continue engaging in healthy behavior; does not use "but" statements.

**MI non-adherent behaviors:** The health care provider does not verbally encourage the patient to have faith in his/her ability to carry out the healthy behavior; does not acknowledge when the patient talks about or makes efforts to change; does not encourage the patient to continue engaging in healthy behavior throughout the interaction; reduces the patient's self-efficacy by using "but" statements.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider notices and addresses all efforts of the patient to engage in healthy behaviors.

**Example:**

> Patient (with excited tone of voice): "You would be so proud of me. I am not only exercising three times a week for 20 minutes, but I have also talked to my husband about ways that we can modify our eating habits together. He's been very supportive of that."

Provider: "You are doing an excellent job with using exercise and thinking about ways to modify your diet. Those things will help control your blood pressure and your diabetes, so you are doing something that should help improve your health. That's excellent."

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider only partially, or only for some behaviors, acknowledges the patient's efforts to engage in healthy behaviors.

**Example:**

Patient (with excited tone of voice): "You would be so proud of me. I am not only exercising three times a week for 20 minutes, but I have also talked to my husband about ways that we can modify our eating habits together. He's been very supportive of that."

Provider: "Wow, you have started exercising! That is wonderful. Now, how is the medication working for you?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to encourage the patient to continue engaging in healthy behavior throughout the interaction.

**Example:**

> Patient (with excited tone of voice): "You would be so proud of me. I am not only exercising three times a week for 20 minutes, but I have also talked to my husband about ways that we can modify our eating habits together. He's been very supportive of that."

> Provider: "Aha, I see, but how is the medication working for you?"

### 3. *Rolls with resistance*

**Explanation of skill:** The health care provider does not engage in any argument with the patient regarding the patient changing certain behaviors, but rather actively involves the patient in the process of decision making; does not get drawn into argument by antagonistic or resistant statements and instead shifts focus to the topic at hand.

**MI adherent behaviors:** The health care provider does not disagree with the patient and stays focused on the topic; does not confront the patient when the patient is resistant to discussing a topic related to the patient's health; does not get drawn into argument by antagonistic or resistant statements and instead shifts focus to the topic at hand; does not make the patient defensive.

**MI non-adherent behaviors:** The health care provider disagrees with the patient; confronts the patient when the patient is resistant to discussing a topic related to his/her health; argues against the patient's preferences and shifts the focus away from the topic; brings the patient to the point where he/she is defending the reason why he/she cannot change.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider does not disagree with the patient and involves the patient in problem solving regarding a certain behavior.

**Example:**

> Provider: "Last time we met, we talked about ways you can start eating foods with less saturated fat. How are you coming along with that?"

> Patient (with an upset tone of voice): "I knew that you would ask that. I don't understand why I have to modify my diet. I eat small portions anyways."

> Provider (with a calm tone of voice): "It can be frustrating when all of a sudden you have to make lifestyle changes, especially changes in eating habits. It's great that you're eating small portion sizes. May I tell you what concerns me?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may not disagree with the patient, but does not include the patient in the problem solving process regarding a patient's behavior.

**Example:**

> Provider: "Last time we met, we talked about ways you can start eating foods with less saturated fat. How are you coming along with that?"

> Patient (with an upset tone of voice): "I knew that you would ask that. I don't understand why I have to modify my diet. I eat small portions anyways."

Provider (with a calm tone of voice): "It can be frustrating when all of a sudden you have to make lifestyle changes, especially changes in eating habits. Unfortunately, sometimes having small portions of food is not enough to manage hyperlipidemia. That is why you have to modify your diet."

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider either engages in disagreement or confronts the patient when the patient is resistant to discussing a topic related to the patient's health.

**Example:**

Provider: "Last time we met, we talked about ways you can start following a stricter diet and eating foods with less saturated fat. How are you coming along with that?"

Patient (with an upset tone of voice): "I knew that you would ask that. I don't understand why I have to modify my diet. I eat small portions anyways."

Provider (with a serious tone of voice): "We talked about the benefits of low fat foods last time we met. Not following a strict diet would mean sabotaging your treatment."

**4.** *Develops discrepancy*

**Explanation of skill:** The health care provider elicits from the patient what the patient will gain or lose if she/he does or does not engage in behavioral change. The health care provider demonstrates obvious differences between the patient's problem behavior and important goals or values that the patient holds.

**MI adherent behaviors:** The health care provider points out obvious differences between the patient's problem behavior and the patient's goals/values; points out obvious differences between the patient's pros and cons for the problem behavior.

**MI non-adherent behaviors:** The health care provider does not point out how the patient's problem behaviors or unhealthy lifestyle differ from the patient's long-term health or life goals and values.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider uses non-threatening questions to explore with the patient how the patient's current behavior/lifestyle differs from the patient's long-term health and life goals.

**Example:**

> Patient: "I am sick and tired of everyone telling me what to do. My wife wants me to stop smoking. My oldest son told me the other day that he wants me to be alive and well when my first grandchild is born. Yes, I want to be there to enjoy my grandchild. I want to be in my grandchild's life and experience being a grandparent together with my wife."

> Provider: "It sounds like you are frustrated with your family's concerns. From what you are telling me, it sounds like you have two important goals-one, to be a grandfather and be in your grandchild's life, and the other, to experience that together with your wife. On the other hand, you've told me that you like to smoke. What impact do you think the smoking will have on your desire to experience being a grandfather and share that experience with your wife?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may point at how the patient's present behavior or lifestyle differ from some of the patient's health or life goals, but may miss to point at the difference with between the current behavior and other health or life goals.

**Example:**

Patient: "I am sick and tired of everyone telling me what to do. My wife wants me to stop smoking. My oldest son told me the other day that he wants me to be alive and well when my first grandchild comes to this world. Yes, I want to be there when my grandchild is born. I want to be in my grandchild's life and experience being a grandparent together with my wife."

Provider: "It sounds like your family cares about you a lot. From what you are telling me, it matters to you greatly to be a grandfather. On the other hand, you like to smoke. How do you think your smoking habit fits with your desire to experience being a grandfather?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to point at how the patient's present behaviors or lifestyle differ from the patient's long-term health or life goals and values when the opportunity arises.

**Example:**

> Patient: "I am sick and tired of everyone telling me what to do. My wife wants me to stop smoking. My oldest son told me the other day that he wants me to be alive and well when my first grandchild is born. Yes, I want to be there when my grandchild is born. I want to be in my grandchild's life and experience being a grandparent together with my wife."

> Provider: "Do you mind if I tell you some ways that you can start moderating smoking?"

**Domain: Interpersonal Process**

**1. *Resists the righting reflex***

**Explanation of skill:** The righting reflex is the health care provider's desire to fix the patient's dilemma or ambivalence by providing advice or trying to persuade the patient that there is a particular resolution to the patient's ambivalence. However, because of the nature of ambivalence, the patient may argue against the proposed resolution or withdraw from the conversation. This may lead the health care provider to start seeing the patient as "in denial" or as "resistant". This may also lead the patient to take the opposite side of the one proposed by the health care provider.

**MI adherent behaviors:** The health care provider asks the patient for permission before offering information; does not persuade the patient that there is a certain right course of action that the patient needs to take; focuses on exploring the opposing forces that cause the patient's ambivalence.

**MI non-adherent behaviors:** The health care provider gives advice to the patient to take a certain action without asking for permission; offers the patient a resolution without asking the

patient; uses persuasion; does not resist the idea of countering the patient's ambivalence by advising the patient to take a certain action or offering the patient a resolution, uses directive language in solution-giving (e.g., "you should", "need to").

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider resists the need to advise the patient or offer a resolution. The health care provider rather focuses on exploring the opposing forces that cause the patient's ambivalence.

**Example:**

Patient (diagnosed with liver problems): "I only drink alcohol socially. It is my way of having fun with my friends."

Provider: "It sounds like spending time with your friends and having fun means a lot to you. You feel like giving up alcohol means giving up having fun and spending time with your friends. Can I share with you what concerns me about this?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may at first resist the need to offer a resolution but may not go further into helping the patient better understand the ambivalence or may fall into the trap of offering a resolution.

**Example:**

> Patient (diagnosed with liver problems): "I only drink alcohol socially. It is my way of having fun with my friends."

> Provider: "It sounds like spending time with your friends and having fun means a lot to you. It may feel to you like giving up alcohol would mean giving up having fun and spending time with your friends. What do you think about that?"

> Patient: "Yeah, I need that fun to cope with stress."

> Provider: "Well, your health is also very important and it may be necessary to significantly moderate drinking."

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider cannot seem to resist the idea of countering the patient's ambivalence by advising the patient to take a certain action or offering the patient a resolution.

**Example:**

> Patient (diagnosed with liver problems): "I only drink alcohol socially. It is my way of having fun with my friends."

> Provider: "I really think that any alcohol will make your condition worse. It is my suggestion that you stop drinking because if you don't, your condition will get worse."

Patient: "I can't just quit cold turkey. Besides, it is not like I get drunk when I drink. And, I don't want to lose my friends."

**2. Uses *reflective listening* – actively listens and responds with sentences that reflect the core of what the patient says**

**Explanation of skill:** In order to understand and accept the patient's perspective, the health care provider needs to actively listen. Reflective listening is a way of assuring the patient that the health care provider is listening and following the patient through the conversation and reflecting his/her understanding of what the patient is saying/meaning.

**MI adherent behaviors:** The health care provider demonstrates active listening by responding with sentences that reflect the core of what the patient says/means.

**MI non-adherent behaviors:** The health care provider does not demonstrate active listening and his sentences do not reflect the core of what the patient says/means.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider demonstrates active listening by responding with sentences that fully reflect the core of what the patient says/means and fully capture the patient's experience/feelings.

**Example:**

Patient: "I don't want to take the medication again. The side effects are horrible. I feel nausea every night I take it, and my stomach has been upset for days. I hate that feeling. I have been waiting to see if my body gets used to the medication, but the nausea has not gone away. Is there anything else that can be prescribed?"

Provider: "It sounds like the unpleasant side effects have been awful for you. It also sounds like you have given it a try, but the side effects are making you really upset and affecting your daily functioning."

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider may reflect on some of the patient's experiences/feelings, but does not fully reflect the core of what the patient says/means.

**Example:**

Patient: "I don't want to take the medication again. The side effects are horrible. I feel nausea every night I take it, and my stomach has been upset for days. I have been waiting to see if my body gets used to the medication, but the nausea has not gone away. Is there anything else that can be prescribed?"

Provider: It sounds like the unpleasant side effects have been awful for you. We can explore other treatment options. How long have you been taking the medication?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider does not demonstrate active listening and his sentences do not reflect the core of what the patient says/means and the depth of the patient's experience/feelings.

**Example:**

Patient: "I don't want to take the medication again. The side effects are horrible. I feel nausea every night I take it, and my stomach has been upset for days. I have been waiting to see if my body gets used to the medication, but the nausea has not gone away. Is there anything else that can be prescribed?"

> Provider: "I see. We can explore other treatment options. How long have you been taking the medication?"

## 3. Uses *open-ended questions*

**Explanation of skill:** The health care provider uses open–ended questions (questions that elicit more than no/yes answers) so that the provider can gather more information about the patient's perspective, problems, motivation, behavior, goals, and plans. The use of open-ended questions allows the patient to choose the direction of the answer without being forced to choose a yes/no answer. Open-ended questions not only reduce the patient's resistance and increase the patient's motivation to respond, but also affect the patient's self-esteem. Open-ended questions allow the health care provider to demonstrate person-centeredness and they help the provider to explore the patient's perspective without threatening the patient in an interrogation manner.

**MI adherent behaviors:** The health care provider uses open-ended questions that encourage the patient to choose the direction of the response.

**MI non-adherent behaviors:** The health care provider does not use open-ended questions that encourage the patient to choose the direction of the response.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider uses open-ended questions to allow the patient to express his/her feelings and thoughts when she/he explores the patient's experience.

**Example:**

The patient had identified wanting to moderate smoking cigarettes. The patient has agreed to cut down from half-a-pack of cigarettes per day to four cigarettes per day.

> Provider: "How has your plan to moderate smoking been working for you since our last appointment?"
>
> Patient: "It hasn't worked all that well. I still smoke close to a half-a-pack."
>
> Provider: "How do you feel about that?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider uses some open-ended questions, but misses some opportunities to use open-ended questions.

**Example:**

The patient had identified wanting to moderate smoking cigarettes. The patient has agreed to cut down from half-a-pack of cigarettes per day to four cigarettes per day.

> Provider: "How has your plan to moderate smoking been working for you since your last visit?
>
> Patient: "It hasn't worked all that well. I still smoke close to a half-a-pack."
>
> Provider "Do you feel disappointed with yourself that you did not follow your plan?"

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider uses closed-ended questions during the interaction that limit the patient in expressing his/her feelings and thoughts.

**Example:**

One of the goals that the patient has identified is to start exercising.

> Provider: "Did you exercise at all this past week?"

> Patient: "No."

> Provider: "Did you feel disappointed that you did not exercise?"

**4. Uses** *agenda setting*

**Explanation of skill:** The health care provider asks the patient to choose which topic will be discussed.

**MI adherent behaviors:** The health care provider explores patient`s preference/choice which behavior(s) will be discussed; explores the behaviors that the patient has indicated; explores the patient's preferred/chosen behaviors first.

**MI non-adherent behaviors:** The health care provider does not explore which behavior(s) the patient prefers to discuss; does not explore the behaviors that the patient has indicated; discusses other behaviors before patient's stated preferences.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider uses non-threatening questions to allow the patient to explore what behaviors the patient wants to work on whenever an opportunity arises.

**Example:**

Provider: "I don't want you to have a heart attack either. Tell me what you know about things you can do to bring your blood pressure down."

Patient: "I am not sure."

Provider: "May I offer you some suggestions on how you can lower your blood pressure?"

Patient: "Yes."

Provider: "There are several things you can do to help lower your blood pressure; these include medication taking, making small changes in some of the foods you eat, and getting some regular activity into your routine. Which of these would you like to talk about first?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

The health care provider uses open-ended questions to explore what behaviors the patient wants to work on, but misses some opportunities to explore.

**Example:**

Patient: "After my last conversation with you, I have seriously started thinking about ways to get exercise in my life. I have also talked to my wife about wanting to have some changes in my diet."

Provider: "What are some ways that you have thought of changing your diet?"

Patient: "Well, I have told my wife that we should start considering having smaller portions and cooking more at home rather than eating out."

Provider: "That sounds excellent. When eating out, you may not always know the nutritional value of your dish. Also, smaller portions will help with some weight loss. What are some things that you would need to do or change to start cooking more at home?"

After this conversation, the health care provider does not explore the patient's desire to start exercising.

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider fails to explore what behaviors the patient wants to work on when the opportunities arise.

**Example:**

Patient: "After my last conversation with you, I have seriously started thinking about ways to get exercise in my life. I have also talked to my wife about wanting to have some changes in my diet."

Provider: "So, the medication is going to make the biggest impact; how are you doing with that?"

**5.** *Moves smoothly through the interaction*

**Explanation of skill:** The health care provider maintains a smooth and continuous flow in the interaction. The interaction is patient-centered and the topic is completed before moving on to the next topic.

**MI adherent behaviors:** The health care provider maintains a smooth and continuous flow in the interaction; completes one topic before moving on to the next topic; encourages the patient to talk while giving direction to the interaction; stays focused on the conversation; the patient does most of the talking.

**MI non-adherent behaviors:** The health care provider interrupts the patient; changes the course of the interaction abruptly; does not encourage the patient to talk much; jumps from one topic to another.

**Accomplished** (MI adherent skill is well developed and sophisticated)

The health care provider maintains a smooth and continuous flow in the interaction, completes one topic before moving onto the next, and allows the patient to fully express himself/herself.

**Example:**

> Patient: "After my last conversation with you, I talked to my wife about wanting to have some changes in my diet."
>
> Provider: "That's great that you're thinking about making changes that will impact your health. What are some ways that you have thought of for changing your diet?"
>
> Patient: "Well, I have told my wife that we should start considering having smaller portions and cooking more at home rather than eating out."

Provider: "Those are excellent strategies. What are some things that you would need to do or change to start cooking more at home?"

**Developing** (MI adherent skill partially present or skill is present on a basic/simplistic level)

Although the interaction may appear as smooth and focused, the health care provider either does not allow the patient to fully express his/her experience, or rushes through the interaction to get onto the next topic.

**Example:**

Patient: "After my last conversation with you, I talked to my wife about wanting to have some changes in my diet."

Provider: "That's great that you're thinking about making changes that will impact your health. What are some ways that you have thought of for changing your diet?"

Patient: "Well, I have told my wife that we should start considering having smaller portions and cooking more at home rather than eating out."

Provider: "That sounds like a very good strategy. Now, how are you doing with the medication?"

Patient: "Not so great. It's been making me nauseous after I take it."

Provider: "Let's stick to it for another week and see if your body adjusts to the side effects.

**Deficient** (MI adherent skill not evident in interaction, although skill was necessary for facilitating the interaction)

The health care provider jumps onto the next topic without finishing the previous, does not probe the patient to fully express his/her experience, the interaction is not smooth and continuous.

**Example:**

Patient: "After my last conversation with you, I talked to my wife about wanting to have some changes in my diet."

Provider: "Ok, let's talk about that a bit later. How are you doing with the medication?"

Patient: "Not so great. It's been making me nauseous after I take it."

Provider: "Let's stick to it for another week and see if your body adjusts to the side effects. Now, we've also talked about you making some lifestyle changes. Have you tried exercising?"

**Appendix E**

**Examples of MI Adherent and MI Non-Adherent Behaviors**

# Examples of MI Adherent and MI Non-Adherent Behaviors

| MI PHILOSOPHY | | |
|---|---|---|
| Exhibits the 'Spirit of MI' | MI adherent behaviors | Collaborates with patient by engaging him /her in decision-making; emphasizes patient's freedom of choice and /or autonomy; draws from patient's strengths (values, knowledge, and skills) to help patient explore change; does not use patronizing, authoritarian or advising voice tone; acknowledges /addresses patient misconceptions without violating face; attentive to addressing patient's concerns. |
| | MI non-adherent behaviors | Does not collaborate with patient; does not acknowledge patient's freedom of choice and /or autonomy; does not draw from patient's strengths (values, knowledge, and skills); uses patronizing, authoritarian or advising tone; violates face; superficial, non-genuine; discounts /ignores /generalizes patient concerns; has provider-centered agenda. |
| HEALTH INTERVIEWING | | |
| Elicits/addresses patient's understanding about the illness and /or treatment | MI adherent behaviors | Engages patient to express understanding of the *illness*; engages patient to express understanding of the *treatment*; informs to fill knowledge gaps; uses language that meets patient's literacy level. |
| | MI non-adherent behaviors | Does not ask questions to explore patient understanding of the *illness;* does not ask questions to explore the patient understanding of the *treatment*; does not inform to fill knowledge gaps; uses language that is above patient's literacy level. |
| Elicits/addresses patient's awareness of susceptibility/risk of uncontrolled illness/condition | MI adherent behaviors | Engages patient to express understanding of risked outcomes if illness /condition remains uncontrolled; informs to fill knowledge gaps for major risks patient may suffer if illness /condition remains uncontrolled; uses language that meets patient's literacy level. |
| | MI non-adherent behaviors | Does not facilitate a conversation about patient's understanding of risked outcomes if illness /condition remains uncontrolled; does not inform to fill knowledge gaps for major risks patient may suffer if illness /condition remains uncontrolled; uses language that is above patient's literacy level. |
| Elicits/addresses patient's desired health outcomes /goals | MI adherent behaviors | Asks patient's goals for health outcomes; further exploration about how patient feels about the goals; focuses on helping the patient explore how he /she can reach stated health goals. |
| | MI non-adherent behaviors | Does not ask about patient's goals for health outcomes; no further exploration about how the patient feels about the goals; does not help the patient explore how he /she can reach identified health goals. |

| MOTIVATION | | |
|---|---|---|
| Elicits/addresses patient's motivators and barriers for behavioral change | MI adherent behaviors | Elicits internal and external factors that reduce or increase patient's motivation for target behavior (e.g., barriers, challenges, issues, motivators, reasons to sustain change, etc.) and explores them further. |
| | MI non-adherent behaviors | Does not elicit internal and external factors that reduce or increase patient's motivation for target behavior (e.g., barriers, challenges, issues, motivators, reasons to sustain change, etc.); elicits but does not explore further. |
| Reflects and affirms change talk | MI adherent behaviors | Responds to patient change talk (e.g., expressing desire to change behavior, making plans to engage in or maintain target behavior(s), talk about benefits or prior successes); supports /encourages /reinforces patient's change talk. |
| | MI non-adherent behaviors | Does not respond to patient change talk; does not support /encourage /reinforce patient's change talk. |
| MI PRINCILPES | | |
| Expresses empathy | MI adherent behaviors | Verbally communicates understanding of the patient's feelings or perspective; verbally communicates non-judgmental acceptance; responds to patient's direct expression of emotion; non-verbally communicates understanding of the patient's feelings or perspective (e.g., uses a warm and caring tone of voice; uses direct eye contact; leans toward the patient with open body stance; nods when listening). |
| | MI non-adherent behaviors | Misses opportunities to respond to an expressed patient emotion; does not communicate an understanding of the patient's feelings or perspective; gives superficial response; changes subject; does not non-verbally communicate understanding of the patient's feelings or perspective (uses an authoritarian tone of voice; is judgmental, shaming or disinterested; does not use direct eye contact; does not lean openly toward patient; does not nod); uses only fillers (e.g., "I see", "ok", "right", "I understand") and no empathic response follows. |
| Supports self-efficacy | MI adherent behaviors | Verbally encourages patient to have faith in his /her ability to carry out healthy behavior; acknowledges when patient talks about or makes efforts to change; encourages the patient to continue engaging in healthy behavior; does not use "but" statements. |
| | MI non-adherent behaviors | Does not verbally encourage patient to have faith in his /her ability to carry out healthy behavior; does not acknowledge patient talking about /making efforts to change; does not encourage patient to continue engaging in healthy behavior throughout the interaction; discounts self-efficacy support by using "but" statements. |
| Rolls with resistance | MI adherent behaviors | Does not disagree with patient and stays focused on the topic; does not confront patient when he /she is resistant to discussing a topic; does not get drawn into argument by antagonistic /resistant statements and shifts focus to the topic at hand; does not make patient defensive. |
| | MI non-adherent behaviors | Disagrees with the patient; confronts the patient when the patient is resistant; argues against patient preferences and shifts focus away from the topic; brings patient to point of defending the reasons why he/she cannot change. |
| Develops discrepancy | MI adherent behaviors | Points out obvious differences between patient's problem behavior and patient's goals /values, or between patient's pros and cons for the problem behavior. |
| | MI non-adherent behaviors | Does not point out how patient's behaviors /lifestyle differ from his /her stated long-term goals and values. |

| INTERPERSONAL PROCESS | | |
|---|---|---|
| Resists the righting reflex | MI adherent behaviors | Asks patient for permission before offering information; does not persuade patient that there is a certain right course of action that the patient should/needs to take; focuses on exploring patient ambivalence. |
| | MI non-adherent behaviors | Does not ask patient for permission before offering information; gives advice that patient should take a certain action; offers patient a solution; uses persuasion; does not resist countering patient's ambivalence; uses directive language (e.g., "you should", "need to".) |
| Uses reflective listening | MI adherent behaviors | Demonstrates active listening; responds with sentences that reflect the core of what patient says/means. |
| | MI non-adherent behaviors | Does not demonstrate active listening or give responses that reflect the core of what patient says/means. |
| Uses open-ended questions | MI adherent behaviors | Uses open-ended questions that encourage patient to choose the direction of response. |
| | MI non-adherent behaviors | Does not use open-ended questions; uses closed-ended questions that require yes/no response. |
| Uses agenda setting | MI adherent behaviors | Explores patient preferences/choice for what behavior(s) will be discussed; explores behavior(s) patient has indicated; explores patient preferred/chosen behaviors first. |
| | MI non-adherent behaviors | Does not explore patient preference for behavior(s) to discuss; does not explore the behaviors that the patient has indicated; discusses other behaviors before patient stated preferences. |
| Moves smoothly through the interaction | MI adherent behaviors | Maintains a smooth and continuous flow in the interaction; completes one topic before moving on to the next topic; encourages patient to talk while giving direction to the interaction; stays focused on the conversation; patient does most of talking. |
| | MI non-adherent behaviors | Interrupts the patient; changes the course of the interaction abruptly; does not encourage patient to talk much; jumps from one topic to another without completing topic. |