

**An Initial Validation of a Two Dimensional Theory of Motivational Interviewing**

by

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## Abstract

Patient non-adherence to treatment regimen is a major cause for increased healthcare utilization costs associated with emergency room visits, outpatient services and hospitalizations. The need to improve patient adherence calls for a counseling approach that increases the probability of patients' engaging in constructive health behavior change. Motivational interviewing (MI) is a patient-centered approach to counseling that enhances the patient's intrinsic motivation for behavior change by addressing the patient's ambivalence and resistance. Several systematic reviews of MI studies have supported the effectiveness of MI while also calling for a more adequate theoretical account of the effectiveness of MI.

This study is the first attempt to validate a two dimensional model of MI proposing that the effectiveness of MI varies along two synergistic dimensions, namely addressing relational resistance and addressing issue resistance. Addressing relational resistance refers to respecting the patient's face and addressing issue resistance refers to providing information directly responsive to the patient's core concerns/issues.

Message effects research was used as the primary methodology in this study. 12 videotaped physician-patient counseling sessions operationalized the crossed design for relational resistance (two levels) by issue resistance (three levels). The study participants were 162 students from Auburn University who watched all the stimulus videotaped counseling interactions running from 90 to 150 seconds in length. After each video the

participants provided judgments about these interactions using a 15 item Likert-type scale whose scores were summated to form five reliable dependent measures. The results of this study supported that the perceived effectiveness of MI varies along the two synergistic dimensions of addressing resistance in the patient. Two major patterns were observed in the dependent variables. Two relationally oriented variables were accounted for solely by the main effects for relational resistance and issue resistance. Three outcome oriented dependent variables (including likelihood of patient behavior change) were accounted for by the main effects plus a significant interaction effect. This study concluded that it is crucial to consider the two dimensions of resistance in a theory of MI. Finally, the limitations of the study and directions for future research are discussed.

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## **I. INTRODUCTION**

In healthcare, increased patient adherence to treatment regimen has been shown to significantly reduce healthcare utilization costs such as prescriptions, outpatient services, emergency room services and hospitalizations (Kane & Shaya, 2008; Sokol, McGuigan, Verbrugge, & Epstein, 2005). According to Kruger, Berger and Felkey's (2005) review of the literature on adherence, two of the most important factors that significantly improve adherence are a positive/supportive patient-provider relationship and the patient's trust in the effectiveness of the medication. Furthermore, two other factors that reduce adherence to treatment regimen are the patient's fear of side effects and his/her unresolved concerns (Vermeire, Hearnshaw, Van Royen, & Denekens, 2001). Thus, improving adherence calls for a patient-centered counseling approach that creates a positive/supportive relationship with patients and aids providers in understanding and addressing the patient's unresolved concerns. Such a patient-centered counseling approach requires providers to work in partnership with the patient to come to a consensus about treatment options by engaging the patient in the decision-making process.

### **Motivational Interviewing**

Motivational interviewing (MI) is a guided patient-centered approach to counseling that focuses on eliciting the patient's intrinsic motivation to engage in

behavior change by addressing or resolving the patient's ambivalence and resistance (Miller & Rollnick, 2002). MI is founded on Rogers' person-centered theory (Rogers, 1957) and focuses on creating a positive/supportive/trusting relationship with patients. MI elicits the patient's intrinsic motivation to adhere to his/her treatment regimen by exploring and resolving his/her ambivalence and resistance rooted in issues such as fear of side effects and in unanswered questions about his/her illnesses/treatment options, etc. MI providers maintain an egalitarian relationship, thereby working in partnership with a patient and engaging him/her in the decision-making process. Providers serve as facilitators or guides helping patients reach their desired health-related goals. The patient's feelings are given due recognition. Their values and goals relevant to engaging in positive health behavior changes are explored and addressed in an empathic manner. Consequently, Berger, Liang and Hudmon (2005), Martins and McNeil (2009) and Riekert, Borrelli, Bilderback and Rand (2010) have called for the increased use of MI to improve adherence to treatment regimen in healthcare.

**MI Origin.** The emerging theory of MI was first formulated by William Miller (Miller, 1983; Miller & Rollnick, 2002), who became aware of the impact of his interpersonal processes on his the patient's behaviors (Miller & Rose, 2009). Eventually, the MI counseling approach (Miller & Rollnick, 2002) integrated various other theories/models such as the transtheoretical model of change (TTM) (Prochaska, 1997; Prochaska, Redding, & Evers, 2002), cognitive dissonance (Festinger, 1957) and self-efficacy (Bandura & Adams, 1977), with Carl Rogers' person-centered theory (Rogers, 1957) as its foundation. Rogers' conditions for therapeutic personality change, namely providers' empathy, unconditional positive regard and congruence, form the basis of MI

counseling. Providers' empathic understanding and non-judgmental attitude help patients to open up to the process of behavior change (Rogers, 1980), by sharing their concerns and issues affecting their willingness and ability to engage in behavior change. When patients trust their healthcare providers, they are also more likely to become receptive to medical information shared by their providers. MI also incorporates two essential principles of TTM: 1) behavior change often takes place incrementally, and 2) treatment recommendations should be in line with the level of readiness of patients. In other words, providers' recommendations should be tailored according to the patient's readiness to engage in behavior change. For example, with patients who are not ready to even think of making a behavior change, it would be unproductive to offer them information about behavior change strategies, but it might be productive to explore and address their reluctance to consider a change in behavior. In addition to TTM, MI also incorporates the principle of developing dissonance and reinforcing the patient's self-efficacy that helps build and reinforce the patient's motivation to engage in constructive behavior change.

**MI in Healthcare.** Although MI originated in the field of addiction counseling, it is being widely applied by healthcare professionals such as physicians, nurses, pharmacists, social workers, health counselors, etc. The importance of healthcare providers' communication style with patients has become more evident recently with many medical schools training their students in patient-centered communication skills (Brown & Oriel, 1998; Poirier et al., 2004). MI counseling has been incorporated into the course curriculum of some pharmacy schools (such as the Harrison School of Pharmacy, Auburn University) in the United States as an effective approach to improving treatment adherence in patients (Villaume, Berger, & Barker, 2006). In contrast to psychotherapy



settings where counselors offer long counseling sessions often ranging from 45 minutes to an hour, the time constraints of healthcare settings require providers to counsel patients within a limited amount of time (for example 5-10 minutes). Therefore, the MI counseling in healthcare settings is formulated as brief motivational interviewing (BMI). Considering the incorporation of MI counseling in various settings to facilitate health behavior change, the question arises of how effective MI is with patients?

**MI Effectiveness.** MI was initially examined for its effectiveness in patients with substance abuse problems (Miller, 1983; Miller, Benefield, & Tonigan, 1993; Miller & Sovereign, 1988) and the results were very encouraging. Later the effectiveness of MI was put to test for a number of other health behaviors like smoking (Soria, Legido, Escolano, Yeste, & Montoya, 2006; Wakefield, Olver, Whitford, & Rosenfeld, 2004), non-adherence to medications (Berger et al., 2005; Golin et al., 2006), binge eating (Cassin, von Ranson, Heng, Brar, & Wojtowicz, 2008; Feld, Woodside, Kaplan, Olmsted, & Carter, 2001), obesity (MacDonell, Brogan, Naar-King, Ellis, & Marshall, 2011), physical activity (Kinmonth et al., 2008), dietary changes (VanWormer & Boucher, 2004), use of contraceptives (Petersen, Albright, Garrett, & Curtis, 2007; Petersen et al., 2004), and cancer screening (Ludman, Curry, Meyer, & Taplin, 1999; Taplin et al., 2000), etc. The results were not always positive, but generally there was evidence for the effectiveness of MI in promoting positive health behaviors in patients. The systematic review of MI literature by Dunn, Deroo and Divara (2001) has reported that MI is effective in treating alcohol abuse. Lundahl, Kunz, Brownell, Tollefson and Burke's (2010) review of the past two and half decades of literature on MI suggested that MI produces significant but small effect sizes when compared to no treatment but no

significant effects when compared to other specific systematic treatments. At the same time, Knight, McGowan, Dickens and Bundy (2006) have suggested MI may not be effective for healthcare interventions. Their conclusion that MI may not be effective in healthcare was based on the review of only eight MI studies. The reason for the inclusion of only eight studies in the systematic review by Knight and colleagues is because many studies did not meet the standards for inclusion in the systematic review. For example, many studies did not define the MI intervention adequately. Thus, according to the systematic reviews there is wide variability in the reported effectiveness of MI.

This variability in the reported effectiveness of MI may be accounted for by variability in how MI was implemented in these studies. Knight and colleagues (Knight et al., 2006) expressed their concern about the difficulty in comparing MI effectiveness studies and drawing firm conclusions about the effectiveness of MI because of wide variability in the implementation of MI. They attributed this wide variability to the theory of MI being underdeveloped. In fact, several of the meta-analytic literature on MI (Britt, Hudson, & Blampied, 2004; Burke, Arkowitz, & Menchola, 2003; Dunn et al., 2001; Knight et al., 2006; Martins & McNeil, 2009; Miller & Rose, 2009; Vasilaki, Hosier, & Cox, 2006) have expressed a deep concern about a lack of an adequate theory of MI and have called for research examining the mechanism of action of MI. However, there has been very little research designed to expand upon the current theory of MI.

The most current formulation of MI theory by Miller and Rose (2009) proposes change talk as a result of providers' use of MI skills and the demonstration of MI spirit. In other words, the theory suggests that if providers know how to use MI skills and exhibit MI spirit, they are likely to elicit change talk from patients. However, the current

MI theory does not explain how the use of MI skills contributes to change talk. This proposition is similar to suggesting that using a set of tools (such as hammer, screw driver, etc.) will lead to a well-constructed house (Villaume, 2011, July 14). There is very little attention paid to the concerns/issues of the patient; instead the focus is on the how adept the provider is in using MI skills. Consequently, current MI theory has resulted in providers remaining preoccupied with using MI skills while losing sight of the key issues affecting the patient's motivation to engage in behavior change (Krishna, 2010; Villaume, Berger, & Krishna, 2009).

Villaume, Berger and Krishna (2009) suggested a modification to the theory of MI, whereby increased motivation to change as manifested in change talk is explained by the interaction between two underlying dimensions, which are:

1. Reducing relational resistance
2. Addressing issue resistance.

Relational resistance is any reluctance expressed by patients about engaging in health behavior change because they do not like the way they are being treated by the health care providers. It means "I am not going to even consider changing because I don't like how you are talking to me and treating me". Reducing relational resistance involves respecting the patient's face; ignoring the patient's face leads to increased relational resistance. Thus, providers' responses to patients could result in two possible levels of relational resistance:

1. High relational resistance
2. Low relational resistance

In high relational resistance, the providers' responses to patients cause the patients to become more defensive as they experience face loss, while in low relational resistance the providers' responses result in mitigation of patients' defensiveness as the patient's face is respected.

The second underlying dimension of MI interaction is issue resistance, which is any reluctance expressed by patients about engaging in health behavior change because their key concerns or issues have not been addressed. An example of issue resistance is "I don't need to take the prescribed medicines because I don't feel any symptoms of high blood pressure; I am in good shape and I feel fine." As long as the patient continues to embrace this line of reasoning, the patient will not feel any need to change his/her behavior. Addressing issue resistance involves addressing the patient's key concerns that affect the patient's motivation to engage in behavior change. Thus, providers could respond to the patient's issue resistance by:

1. Ignoring the patient's issues.
2. Reflecting the patient's issues but not addressing them.
3. Both acknowledging and addressing the patient's issues.

The first level of responding to issue resistance, which is ignoring the patient's issues, involves providers' overlooking or disregarding the patient's key concerns. The second level of responding to the patient's issues, which is the providers' acknowledging of the patient's issues but not addressing the issues, involves the providers reflecting the patient's key concerns but making no attempt to respond to those key concerns. In other words, the providers' responses are limited to expressing understanding of the patient's key concerns. The third level of responding to the patient's issues, which is both

reflecting and addressing the patient's issues, entails the provider not only exhibiting understanding of the patient's key concerns but also offering targeted information to the patient that helps in addressing and resolving the patient's key concerns.

Thus, there are two levels of the first dimension i.e. relational resistance and three levels of the second dimension, which is the issue resistance. The modified theory of MI proposed by Villaume and colleagues (2009) suggests the patient's enhanced motivation to engage in behavior change is a result of the interaction between these two dimensions. This two dimensional model of MI was proposed based on a qualitative study and hence it needs to be tested using an experimental study. This dissertation study will be the initial step in validating the two dimensional model of MI using the methodology of message effects research.

### **Message Effects Research**

Message effects research examines how systematic variations in the organization of messages result in systematically different communication outcomes. These outcomes are generally in the form of people's judgments, evaluations or attributions of the nature of the messages. The stimulus messages, in the form of video recorded counseling sessions where providers are engaged in counseling a patient, are created to operationalize all possible combinations of the independent variables. As the two independent variables being manipulated in this research study are the relational resistance and issue resistance dimensions, there will be a total of six combinations of the message variables and hence six ways to operationalize the stimulus messages. Furthermore, as suggested by Jackson (1992), the message stimuli will be replicated within each combination of message variables. The participants' reactions to these

stimulus messages are captured using Likert-type scales and analyzed using a mixed model repeated measures MANOVA to validate the dimensional structure of participants' perceptions about the messages.

The message effects research method is the appropriate first step to validate the two dimensional theory of MI because it examines people's reactions to different communication strategies used by healthcare providers in counseling patients. Specifically, this approach does not require the study participants to be real patients nor the providers to be real healthcare providers. Furthermore, the message effects research could help identify those communication strategies that are perceived to be effective in promoting behavior change in patients. And above all, it could help validate the dimensional structure/nature of the participants' perceptions of an effective communication strategy. Thus, the use of message effects research is an appropriate first step in providing experimental validation of the two dimensional model of MI.

The next chapter (chapter II) examines in greater detail the need for a more fully developed theory of MI as suggested by the meta-analytical literature on MI. Then, the second chapter discusses the findings of a qualitative study that has proposed a two dimensional theory of MI counseling. Finally, the second chapter proposes a set of hypotheses designed to allow for initial validation of the two underlying dimensions of MI. Chapter III will explain the procedures implementing the message effects research method used for an initial validation of the two dimensional theory of MI. Chapter IV will report the results of this study. Finally Chapter V will consist of the discussion of the results and the report of the final conclusions.

## II. LITERATURE REVIEW

### MI Origin

MI was founded by William Miller who specialized in counseling patients being treated for substance abuse. While working as a faculty member in the department of Psychology at the University of New Mexico, he travelled to other countries mentoring psychologists in counseling addiction patients. Specifically, during a trip to Norway, Miller's interaction with a group of his mentees resulted in his conception of MI. Miller's mentees presented him with challenging cases of substance abusing patients and asked him to role play how he would counsel these patients. During these roleplays, Miller was often asked to make explicit the thought processes/logic that guided his approach to counseling. These requests for explicitness resulted in Miller's exploring and documenting the guiding principles behind his own style of counseling that was initially called the Brief Drinker's check-Up (BDU) and eventually came to be known as Motional Interviewing (MI) (Miller, 1996; Miller & Rose, 2009).

**Development of the BDU.** Miller along with his colleagues conducted a series of studies (Miller, Gribskov, & Mortell, 1981; Miller & Taylor, 1980; Miller, Taylor, & West, 1980) before arriving at the idea of offering the BDU to patients with problem drinking. Initial studies with problem drinkers resulted in two main conclusions:

- Empathy is a strong predictor of treatment outcomes (Miller et al., 1980).

- Brief interventions are comparable in their effectiveness to extended interventions (Bien, Miller, & Tonigan, 1993; Miller & Taylor, 1980; Miller et al., 1980).

The conclusion that empathy is a strong predictor of treatment outcomes was based on a study by Miller, Taylor and West (1980) that compared four treatments for problem drinking. Behavioral self control training (BSCT) was common to all the treatment groups. The first group received self help manuals that contained instructions for BSCT after a single assessment session with the provider. The second group received six individual weekly sessions of BSCT with the contents presented in the same sequence as presented in the self help manuals. Thus, the patient in the second group received the same information that was presented in the self help manuals but it was offered by a provider in six different sessions. The duration of each session was about 50 minutes with one session conducted in a week. The third group received six sessions of BSCT just as the second group but with 12 additional sessions of relaxation, communication and assertion training. In other words, there was a difference in the duration of treatment offered to the patient between the second and the third group with the third group receiving longer duration of treatment. Finally, the fourth group received six individual sessions of BSCT along with 12 weeks of individually tailored broad spectrum modules. The difference between the third and the fourth group was that the fourth group received three tailored modules that were selected by the patient. On the other hand, in the third group the three modules were preselected and every patient received the same three modules, i.e., relaxation, assertion and communication training. The results indicated that patients in all four groups showed significant behavioral outcomes after therapy. However, there were no differences among groups. Thus, the patient who received



provider administered therapy was not significantly better than the patient who was assessed by the provider and sent home with a self help manual. In this study, the provider behavior was observed and rated through a one way mirror as the provider was engaged in offering counseling. The providers were crossed across the groups. The observers watched the provider behaviors through a one way mirror and rank ordered provider's empathic behavior. When Miller, Taylor and West matched these rankings with patient outcomes, they discovered that these rankings of empathic provider behavior accounted for over 67% of the variance in patient outcomes six months post intervention. Thus, this study indicated that empathy predicted two-thirds of the variance in treatment outcomes. Based on this finding, Miller and colleagues asserted that empathy is a strong predictor of treatment outcomes (Miller et al., 1980).

In addition to the finding that empathy is a strong predictor of patient outcomes, Miller and colleagues (Miller et al., 1981; Miller & Taylor, 1980; Miller et al., 1980) also discovered that brief interventions were comparable in their effectiveness to more extended interventions and are significantly more effective than no intervention at all. In the study by Miller and Taylor (Miller & Taylor, 1980). The effectiveness of brief interventions for alcoholism was also supported by the systematic review of Bien, Miller and Tonigan (Bien, Miller, & Tonigan, 1993) which concluded that brief interventions are nearly as effective as more extended interventions. Bien and colleagues (1993) postulated that patients who are unresponsive to one brief session of advice are likely to be unresponsive to successive sessions of advising. In the same note Bien and colleagues (1993) have cited another report from a study (Burnum, 1974) that suggests that repeated appeals by providers to change a patient's behavior such as smoking, alcohol and drug

abuse were often ineffective. Also, the patient that engaged in behavior change did so in less than two consultations with his/her provider (Bien, Miller, & Tonigan, 1993).

Thus, Miller and colleagues based on their findings that empathy is a strong predictor of treatment outcomes and that brief interventions are comparable in their effectiveness to extended interventions worked on developing a brief intervention for patients with problem drinking. The next step they took was to identify the common characteristics of brief interventions that were offered for problem drinking. Miller and colleagues identified six common features across brief interventions and labeled them by the acronym FRAMES. These features were that the brief interventions (1) offered patient assessment and feedback on individual findings, (2) emphasized personal responsibility for change on the part of the patient, (3) offered direct advice to patients, (4) offered a menu of strategies to patients to carry out behavior change, (5) emphasized empathic communication, and (6) reinforced the patient's self-efficacy (Miller, 1996).

The elements of FRAMES were incorporated into a single intervention. The intervention was called the "brief drinker's check-up" (BDU) (Miller, 1996). It was conducted in two sessions where the first session involved assessment of the patients and the second session offered empathic feedback to the patients. While the counselors did offer advice and strategies to accomplish change whenever appropriate, the counselors were high on empathizing with the patients and emphasized that the patients were in charge of the final decision about whether or not they would make any behavioral changes (Miller, 1996).

Thus, during the first session of BDU, the patient was assessed and in the second session, the patient was given feedback in an empathic manner. The provider's role

during the second session following the assessment session in BDU was essentially to elicit the patient's own concerns and questions about alcohol related issues. The patient's questions or reactions to the results of the assessment session were elicited by the provider. Furthermore, during the second session, the provider responded to the patient's questions/concerns/reactions with information that precisely answered the patient's questions/concerns. Hence, the provider's role during the counseling session following the assessment session was to explore the patient's own concerns/reactions and to specifically answer those questions/concerns (Miller & Sovereign, 1988, p. p.257). In answering the patient's questions/concerns with precise information, the provider adopted an empathic style. In other words, the patient's questions/concerns were empathized with and answered by the provider in a manner that did not elicit defensiveness from the patient.

Thus, empathizing with the patients and responding precisely to the patient's questions/concerns were the focus of BDU (Miller & Sovereign, 1988). Subsequent intervention studies implementing BDU demonstrated that the BDU was effective in improving patient outcomes. In one of the randomized control trials with BDU (Miller et al., 1993), patients were randomly assigned to three groups. The first group received assessment followed by directive confrontational counseling, the second group received the same assessment followed by client-centered empathic counseling (BDU group), and the third group received a delayed checkup, which was the waitlist control group. The findings suggested a 57% reduction in drinking, a very large effect size, in the BDU group at six months post intervention and this change in drinking behavior was maintained at one year follow-up. The major difference between the client centered

counseling and confrontational counseling was the differing interactional stance assumed by the counselors in relation to the patients. Empathic patient-centeredness facilitated significantly greater behavior change than did prescriptive confrontation. In a supplemental finding, the study also suggested that the patients' continued drinking behavior could be predicted by the extent to which the providers directly confronted patients ( $r = .65$ ). Miller et al (1993) suggested that the more the patients expressed resistance during counseling in response to being confronted by their counselors, the more the patients persisted in their unhealthy behavior of drinking. In other words, providers respecting face while responding to their concerns had a very positive impact on patient outcomes.

The previous study using BDU indicates the importance of respecting the patient's face as both the confrontational and empathic counseling responded to the patient with the same content but with differing style. Providers' not respecting the patient's face was found to increase resistance and decrease the patient's engagement in behavior change. The BDU approach to counseling patients later became known as MI although MI intervention may extend to several sessions. These initial findings about the effectiveness of MI necessitated the need for a clearly defined theory of MI. A theory of MI was needed in order to conduct further studies replicating its effectiveness in treating problem drinking and also for testing its effectiveness in areas other than problem drinking.

### **Motivational Interviewing (MI) Theory**

MI is a guided patient-centered approach to counseling that seeks to enhance a patient's intrinsic motivation to engage in voluntary health behavior change by exploring

and resolving his/her ambivalence and resistance (Miller & Rollnick, 2002). A patient makes the decision about behavior change depending upon his/her perception of the equilibrium of pros vs. cons with regard to each voluntary behavior they are considering. When the decisional balance is in favor of the pros over the cons, the patient is likely to consider and implement change. And when the decisional balance is in favor of the cons over the pros, the patient exhibits resistance to change. Finally, when the decisional balance of pros and cons is equally weighted, the patient is said to be ambivalent and tends to maintain the status quo. MI seeks to address and resolve resistance/ambivalence by exploring the decisional balance of pros and cons for particular behaviors. For example, if a patient understands the benefits of quitting smoking and wants to quit but he/she is not at all confident about quitting, the MI provider would explore the patient's lack of confidence and seek to offer treatment options with respect to the patient's level of confidence such as taking small steps towards quitting smoking. If the patient identifies one of these options as a feasible or an effective option, then the patient has changed his/her decisional balance in favor of quitting smoking and is no more ambivalent about quitting smoking. Additionally, the patient would be more open to the next step of planning how and when to stop smoking (Miller & Rollnick, 2002).

MI theory proposes that motivation needs to be elicited from a patient instead of provided to the patient (Miller & Rollnick, 2002). Empathy and unconditional positive regard were considered foundational for creating a safe therapeutic relationship so that a patient would feel open to the consideration of voluntary behavior change (Miller & Rollnick, 2002). In other words, the arguments for change must come from the patient instead of from the provider. Miller also incorporated Festinger's (1957) theory of

cognitive dissonance and Bandura's (1977) theory of self-efficacy in MI's approach to exploring and eliciting intrinsic motivation from the patients (Miller & Rose, 2009).

**MI skills.** Motivational Interviewing, according to Miller and Rollnick (Miller & Rollnick, 2002) comprises five basic skills, which are abbreviated as READS skills and they are:

1. **R**oll with Resistance
2. **E**xpress empathy
3. **A**void Argumentation
4. **D**evelop discrepancy
5. **S**upport self-efficacy

The following section discusses each of these five skills individually.

- Roll with resistance:

Rolling with resistance is about exploring the patient's resistance or defensiveness. According to the theory of MI, it is natural for people to resist making behavioral changes and so the patients are not labeled as "resistant or defensive", instead the expressed resistance is viewed as an opportunity to explore and understand the patient's perspectives. Thus, MI providers neither oppose nor avoid the patient's resistance; rather they empathize with resistance and use it as a learning opportunity. Resistance is also viewed by providers as an indicator to respond differently to patients (Miller & Rollnick, 2002).

- Express empathy:

In MI, being empathic is considered as the foundation for the effectiveness of MI. MI providers acknowledge patient's feelings (including ambivalence and

resistance) in a nonjudgmental manner with an intent to be respectful and understanding of the patient. A MI provider accepts the patient's right to have his/her own perspectives and feelings, and therefore seeks to express his/her acceptance of the patient through reflective listening. However, being accepting of the patient does not mean that the provider always agrees with the patient's viewpoints but it means that the patient has the liberty to have his/her own viewpoints (Miller & Rollnick, 2002).

- Avoid argumentation:

Arguing with patients about behavioral changes is avoided because when providers argue with patients for positive behavioral changes, patients often defend their status quo by arguing why they could not change. Thus, argumentation is counterproductive because it elicits arguments for not making changes from the patients (Miller & Rollnick, 2002). For example the more providers argue with patients to quit smoking, the more the patients may defend why they could not quit, which further reinforces their smoking behavior. Hence MI providers avoid advocating or arguing for behavior changes but rather facilitate elicitation of arguments for change from patients by engaging them in thoughtful reasoning.

- Develop discrepancy:

MI providers may create dissonance in their patients by highlighting the discrepancies between a patient's goals and his/her current behavior to enhance the patient's intrinsic motivation to make behavioral changes. When patients perceive a discrepancy between their behavior and health goals, they are likely to bridge this gap by making their behavior consistent with their health goals (Miller & Rollnick,

2002). For example, if one of the cherished dreams of a patient with asthma is to go fishing with his/her grandkids, then MI providers carefully may ask how his/her dream might come to a realization considering that he/she continues to smoke heavily. Thus, MI providers create a discrepancy between the patient's current health behavior and his/her cherished goal to increase the patient's motivation to engage in a positive behavior change (quitting or cutting down on smoking) to realize his/her dreams in life.

- Support self-efficacy:

Self-efficacy refers to the patient's perception of his/her ability to engage in a behavior change. A MI provider reinforces the positive health behaviors of the patient and also boost his/her confidence in maintaining the positive health behavior changes (Miller & Rollnick, 2002). Thus, provider's supporting of self-efficacy leaves the patient in charge of his/her health and also instills a new confidence in him/her to take positive steps to achieve his/her health goals.

**MI spirit.** The READS skills are proposed to elicit change talk from patients while the other component of MI, which is the MI spirit is suggested to create a therapeutic patient-provider relationship conducive for promoting positive health behavior changes in patients.

For Miller and Rollnick (2002) the spirit of MI is constituted by three aspects, namely:

- Collaboration:

The patient and the provider works in partnership in addressing the patient's health concerns. The patient-provider relationship is egalitarian instead of hierarchical, where the patient's expertise is acknowledged in finding possible



solutions to their health concerns. The patient's perspectives are respected as patients are considered to have the necessary resources to make a responsible decision for their health. The providers' role is to facilitate their patients in making well informed health decisions (Miller & Rollnick, 2002).

- **Evocation:**

Change in patients is brought about by eliciting patients' inner motivation. MI providers believe that patients have the resources within them to initiate a change, which only needs to be elicited by the provider by exploring patients' perspectives, values and goals (Miller & Rollnick, 2002). Thus, MI providers never engage in thrusting their ideas on their patients, but rather motivation is drawn out of the patients.

- **Autonomy:**

Patients are not coerced to make health behavioral changes by their providers. MI providers trust their patient's ability to make an informed choice about their health. Thus, the onus of responsibility is on the patients to make their health decisions and the providers' role is to serve as a facilitator in this process of decision making (Miller & Rollnick, 2002).

The previous section discussed the five READS skills and the three components of the MI spirit. Next the proposed relationship between MI (constituting of MI spirit and MI skills) and behavior change in patients will be discussed.

### **How MI Contributes to Behavior Change**

MI is an emerging theory (Miller & Rose, 2009). Although there is no complete understanding of the mechanism of action of MI, there are various propositions in the

literature about how MI produces its effect on behavior change. These propositions about how MI results in behavior change will be discussed next.

**Change talk contributes to behavior change.** Rollnick, Miller and Butler (2009) have proposed that eliciting change talk from a patient results in the patient engaging in behavior change. Providers' eliciting change talk from a patient is about helping a patient make the argument for engaging in behavior change. A patient's expression of change talk according to Rollnick and colleagues (2008) could be of six types and each of these following types of change talk tells something about the patient's level of motivation to engage in health behavior change:

- **Desire:**

The first type of change talk is the patient's expressions of his/her wish to make some behavioral changes. For example a patient could say that "I wish to be in good shape by doing some exercise". In this example, the patient's response is an indication of the patient's inclination for behavior change.

- **Ability:**

This second type of change talk signifies a patient's confidence in his/her ability to make health behavior changes. For example a patient could say that "I can possibly spend about half-an-hour at the gym each day". The patient's expression of his/her ability can also be an indicator of his/her level of motivation to engage in behavior change. For example, a patient who says that "I sure could exercise every day" demonstrates a higher level of motivation compared to a patient who says "I might be able to get some exercise daily".

- **Reasons:**

The third type of change talk is a patient's offering explanation about why he/she wants to consider health behavior changes. For example a patient could say that "Exercising daily will make me more energetic and feel good".

- **Need:**

A patient may communicate the importance for him/her to engage in behavior changes. For example a patient could say that "I need to exercise daily" or "I must get some exercise each day".

All of the preceding four change talk (**d**esire, **a**bility, **r**easons and **n**eed) are pre-commitment types of change talk and represented by the acronym DARN. These forms of change talk are said to be pre-commitment because patients do not commit to make behavioral changes. However, the following two types of change talk specify the patient's expression of commitment to behavior change.

- **Commitment:**

This is the fifth type of change talk where a patient promises to engage in behavior change. In the commitment change talk, the patient has resolved to make some behavioral changes in his/her life in contrast to the pre-commitment change talk where the patient is still considering whether or not to change. In commitment change talk, the patient is decisive about change. In other words, the patient is no more ambivalent about whether or not to engage in behavior change. It is marked by statements from patients like "I will", however, the decisiveness to engage in behavior change may vary in its strength from low to high. For example a patient could say that "I will try to exercise every day" or the patient could also say that "I

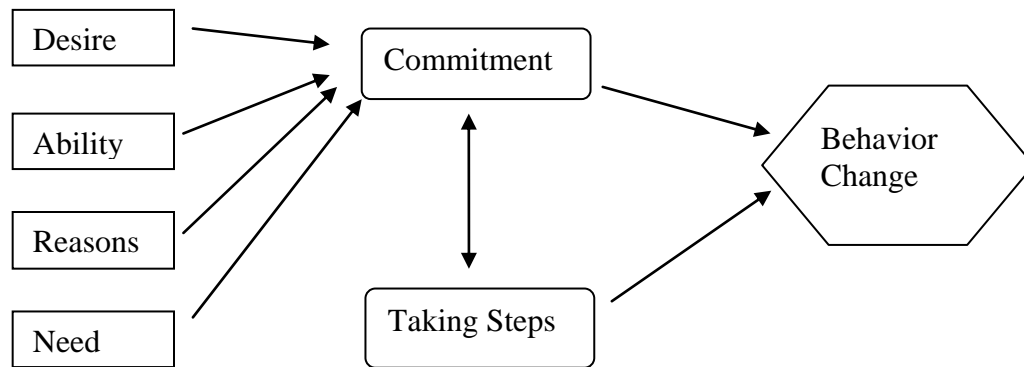
guarantee that I will be exercising for 30 minutes daily”. The first utterance by the patient (“I will try to exercise every day) is an example of a relatively low strength of commitment while the second utterance (I guarantee that I will be exercising for 30 minutes daily” shows a relatively greater strength of commitment to change.

- Taking steps:

In the sixth type of change talk, the patient informs the provider about the steps he/she has taken towards achieving his/her goal of health behavior change. The steps that the patient has taken towards change could range from small to big steps, but the patient has initiated and is continuing the process of changing. For example a patient might say that “I have been parking my car farther away from my office than usual and so I get an extra ten minutes of exercise walking to my office”.

All six types of change talk, according to Rollnick and colleagues (Rollnick et al., 2008) should be recognized and acknowledged by providers. Acknowledgement of change talk reinforces change talk and also engages a patient to talk more about behavior change. As the patient talks more about making changes and how to implement those changes, his/her likelihood of engaging in change is strengthened. As shown in the following figure (Rollnick et al., 2008), the four pre-commitment types of change talk denoted by the acronym DARN result in the change talk expressing commitment to change, which in turn results in the patient’s engagement in behavior change.

Figure 1. Change talk and behavior change.



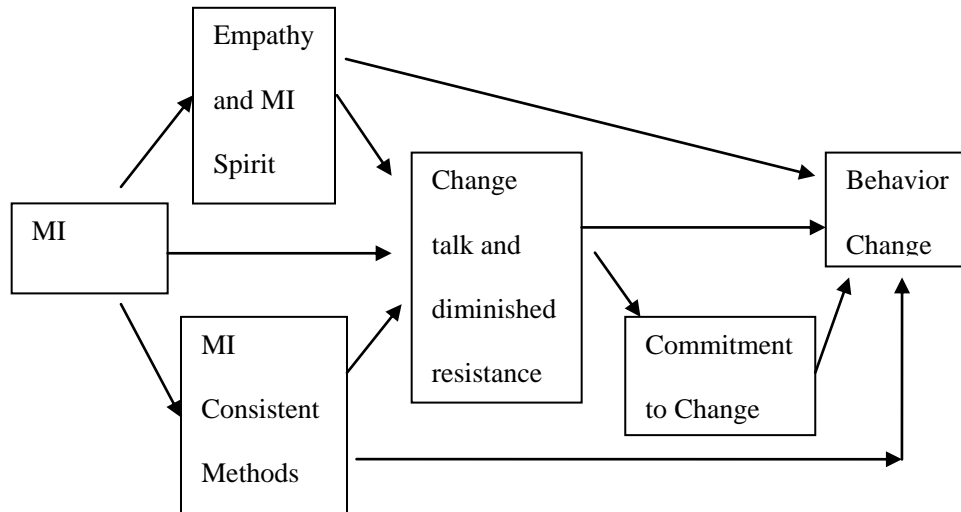
Adapted from Rollnick, Miller & Butler, 2008

The MI providers eliciting pre-commitment change talk from a patient result in commitment change talk from the patient, i.e. the fifth and the sixth types of change talk. Additionally, it was found in a study (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003) that the strength of change talk rather than the frequency of change talk by a patient predicted change. The study by Amrhein and colleagues that investigated whether it was the frequency of change talk or the strength of change talk that resulted in behavior change was conducted prior to Rollnick and colleagues (2008) distinguishing change talk into precommitment and commitment change talk. As a result Amrhein and colleagues examined change talk without differentiating them into commitment and precommitment change talk. In other words, it was not examined if there were any differences in precommitment vs. commitment change talk depending on its strength and frequency in predicting behavior change.

The preceding discussion was about Rollnick, Miller and Butler's (Rollnick et al., 2008) proposition that change talk leads to behavior change in a patient. Next it will be discussed about the proposition that MI components lead to behavior change.

**MI components contribute to behavior change.** As discussed earlier, there are two components to MI; one is MI spirit and the other is MI skills. According to Miller and Rose (2009), increased change talk and decreased resistance is an additive function of 1) provider empathy and MI spirit, and 2) provider's use of MI-consistent methods (such as using open-ended questions, reflection-to-question ratio, patient talk time, etc). The relationship between MI processes and outcomes has been suggested as discussed in the following figure.

*Figure 2.* Relationship between process and outcome variables in MI.



Adapted from Miller & Rose, 2009.

As mentioned earlier, there is evidence for the proposition that the strength of (precommitment) change talk is a predictor of behavior change (Amrhein et al., 2003). The theory proposed by Miller and Rose needs to explain how MI spirit and MI skills lead to change talk. Next, the role of MI spirit and MI skills in facilitating change talk and behavior change will be discussed.

- Role of MI spirit:

Faris, Cavell, Fishburne and Britton (2009) have explained the mechanism of action of MI based on MI spirit using the concept of client agency. Client agency, an empirically validated concept, is the ability of a patient to influence the treatment outcome through self-generated healing. Client agency signifies that patients have the potential for self-directed growth. It was found that client agency strongly predicts treatment outcomes when patients are engaged by the provider in the treatment process (Faris et al., 2009). In other words, patients engage in self-motivated healing and find the resources to solve their problems given that the provider helps patients to utilize their inner problem solving skills.

Thus, providers' role during the treatment process would be to elicit a patient's intrinsic motivation for behavior change. The MI spirit is about the providers' trust in the patient's capacity for a self-generated change and the role of the provider is to elicit the patient's own inner resources for change. MI theory is founded on Rogers' theory, which is built upon the trust that patients have inherent motivation and ability for self-actualization. In other words, when the necessary conditions are provided to patients, it is a natural human tendency to grow in a positive direction (Rogers, 1957). Faris and colleagues assertion about the role of client agency moderated through MI spirit may need to be investigated in the context of MI, as a possible mechanism by which MI produces behavior change. There is no known study that investigated the relationship between MI and client agency.

Moyers, Miller and Hendrickson (2005) have reported MI spirit as a contributing factor for behavior change in patients. Their conclusion was based on a

study where they examined the relationship between provider skills and behaviors and the patient's involvement in the treatment. The study sample comprised of audiotaped recordings of provider's counseling substance abusing patients in their typical work settings. These providers were health care professionals in counseling, psychology, medicine, nursing and social work. The work samples were submitted by the providers four months post MI training and it constituted a total of 103 audiotaped samples and each provider appeared only once in the audiotaped samples. The provider behaviors were measured using Motivational Interviewing Skill Code that assessed the provider's MI spirit and MI skills. There was a global assessment of the provider's empathy, acceptance, egalitarianism, warmth, genuineness and overall MI spirit (evocation, autonomy and collaboration). These six characteristics will be termed here as the provider's adherence to the spirit of MI. Additionally, the providers were assessed for their use of MI skills based on frequency counts and the use of skills was categorized as either MI consistent or MI inconsistent behaviors. The patients were assessed on four global measures comprising of affect, cooperation, engagement and disclosure. Affect denotes the extent to which the patient expressed his/her emotions, the cooperation represents the degree to which the patient was ready to "go with" the provider. Engagement signified the extent to which the patient was actively involved in the consultation with regard to asking for information and showing interest in what the provider had to share. Finally, disclosure indicated the extent to which the patient shared his/her perspectives to the provider or communicated information about himself/herself. All these four global measures including affect, cooperation, engagement and disclosure will be termed as



'patient involvement'. This study using Structural Equation Modeling method indicated that the relationship between the provider's MI consistent or MI inconsistent behaviors and patient involvement was not significant ( $p = .87$ ). However, the relationship between the provider's adherence to the spirit of MI and patient involvement was highly significant ( $p \leq .01$ ). Furthermore, MI inconsistent behavior by itself did not predict patient involvement but when the provider's adherence to the spirit of MI was added to the relationship, the predictive power suddenly increased and the two combined strongly predicted the patient involvement. Thus, the provider's adherence to the spirit of MI predicted patient involvement even when the providers demonstrated MI inconsistent behaviors. Based on these findings, Moyers and colleagues contended that the provider's adherence to the spirit of MI was crucial for patient involvement in the treatment regardless of the use of MI skills by the provider. The finding that the provider's adherence to the spirit of MI is crucial further reinforces Miller and Rollnick's (Miller & Rollnick, 2002) claim about the importance of MI spirit in facilitating change in the patient irrespective of the use of MI skills (Moyers, Miller et al., 2005).

- Role of MI skills:

There is evidence about the role of MI spirit in facilitating change in the patient but there is very little knowledge about the role of MI skills in helping the patient to engage in constructive behaviors. The literature (Apodaca & Longabaugh, 2009) attributes MI consistent behaviors to better outcomes and MI inconsistent behaviors to poor outcomes. Despite some evidence of the positive role of MI-consistent behaviors such as reflecting patient responses, asking open-ended

questions, etc. in improving outcomes, there is conflicting evidence about the impact of MI inconsistent behaviors on outcomes (Moyers, Miller et al., 2005). It should not be surprising that there is contradictory evidence about the role of MI skills in affecting outcomes because it may depend upon the context in which the skills are used or the intention behind the use of skills. For example, asking an open-ended question like “what’s your understanding of your medication?” right after a patient expresses his/her concern by saying “I doubt if my medicine is working in reducing my blood pressure” may be less appropriate or even counter-productive. Although in the previous example, the provider asked an open ended question (which is a MI consistent skill), this otherwise valuable MI skill could be counterproductive because the question implies that the problem is not with the medicine but within the patient. The provider’s question could be understood as intended to explore what is wrong with the patient’s understanding about how or when to take the medicine. In other words, the provider could give an impression that the medicine is working but the patient’s lack of understanding about how to take the medicine has rendered the medicine ineffective. Thus, a MI consistent behavior or a useful MI skill (that is asking an open-ended question) could be ineffective in eliciting motivation to change and instead could elicit resistance from the patient to change. Thus, it is hard to judge the outcomes of MI based on the simple frequency of the use of MI-consistent skills.

On the other hand MI inconsistent behaviors such as using directive style, closed-ended questions (for example asking “did you take your medication as prescribed”), higher questions-to-reflection ratio (asking more questions than using reflective listening), etc. are suggested to be ineffective (Apodaca & Longabaugh,

2009). But these MI inconsistent behaviors may help facilitate behavior change as well when providers are congruent (genuine) and express warmth in the relationship as suggested by Moyers and colleagues (2005). For example a patient says that “I am feeling fine and I don’t think I need this blood pressure medicine.” The provider responds by saying “High blood pressure is not felt and often goes unnoticed. So even though you don’t see any symptoms of high blood pressure, I really need you to take your medicines. I don’t want to see you suffer a heart attack or stroke.” A directive style of communication may not necessarily create resistance in the patient when patients could feel that the provider is authentic and caring in their underlying intent.

To summarize the discussion about the mechanism of action of MI, there is evidence that the strength of change talk expressed by the patient leads to behavior change and that providers’ MI spirit contributes to behavior change in the patient. The question that remains unanswered is how MI skills contribute to change talk or behavior change in the patient. The current theory of MI as proposed by Miller and Rose (2009) falls short of explaining how MI skills help in eliciting change talk from the patient, which then leads to behavior change.

Thus, an explanation about how MI skills help in increasing change talk in the patient could bridge some gap in the current theory of MI. In other words, the question that needs an explanation is how MI skills influence/affect the patient’s perspective that manifests as change talk by the patient. The mechanism of action of MI proposed by Miller and Rose (2009) is incomplete and requires further explanation as it does not clarify the role of MI skills in facilitating change. The inadequacy of MI theory has

remained a major cause of concern. The review literature on MI has consistently demanded a more adequate theory of MI.

### **Call for an Adequate Theory of MI**

The meta-analytic literature (Britt, Hudson, & Blampied, 2003; Burke, Silva, Vaughan, & Knight, 2006; Dunn et al., 2001; Knight et al., 2006; Lundahl et al., 2010) has emphasized the need for a clear link between MI components (MI skills and MI spirit) and its effectiveness in facilitating behavior change in the patient.

Dunn and colleagues' (Dunn et al., 2001) meta-analytical review of 29 studies focused on four areas involving substance abuse, smoking, HIV, and diet and exercise. Overall, the review concluded that MI is an effective intervention with 18 studies reporting at least one outcome with a significant effect size. The greatest evidence for the effectiveness of MI was in substance abuse. Furthermore, the review found mixed results for the effectiveness of MI in increasing the patient's readiness to engage in behavior change. Although, the patient's readiness to change at baseline was found to be a good predictor of outcomes, it was independent of the treatment groups. Most importantly, the authors strongly emphasized the need for the future research to understand the mechanism of action of MI. Finally, the authors have questioned the wide variability in duration of MI training (ranging from 2-31 hours) and highlighted the need for examining the optimal duration of MI training.

Britt et.al. (2003) reviewed MI interventions in healthcare settings and the number of studies included were not stated. The authors have suggested that there is greatest evidence for the effectiveness of MI in the field of problem drinking. In healthcare settings, the evidence for the effectiveness of MI resides mostly in the studies focusing on

smoking cessation. Evidence for the effectiveness of MI in areas of eating disorders, medication adherence, physical activity and dietary changes was characterized as preliminary. The authors concluded that MI probably works better in patients with higher levels of anger and in patients who are least motivated to engage in behavior change. One of the concerns raised by Britt et.al is the lack of information provided in studies to ascertain the internal validity of MI intervention. Additionally, the authors have called for an examination of the amount of training needed for healthcare providers to effectively apply MI in healthcare settings. The authors have also emphasized the importance of identifying the crucial components of MI that are responsible for its effectiveness and elucidating the mechanism by which MI works. It may be noted that the authors have indicated the need to examine optimal ways of responding to a patient's resistance. Specifically, the authors have emphasized the need for the development of MI theory that incorporates methods to deal with the patient's resistance that are common to healthcare settings. Lastly, the authors have expressed that these methods for dealing with the patient's resistance should be capable of being taught and evaluated.

Burke et.al. (2003) reviewed 30 studies of various adaptations of MI in face to face patient-provider interaction. MI was found to be effective in the treatment of substance abuse when compared to no treatment control group but was not more effective than other specific treatments. Burke and colleagues have expressed concern over very limited information about the MI intervention in the studies examining the effectiveness of MI, which made it difficult to differentiate good quality interventions from poor quality interventions. Finally, the review concluded by emphasizing the need for a MI theory that clearly explains the link between MI processes and outcomes. The reviewers

concluded that there is little evidence that MI works by enhancing the patient's motivation or readiness to engage in behavior change. Lastly, the authors have insisted on the need for research to explain the mediators and moderators of MI treatment.

Knight et.al (2006) reviewed 8 studies focusing on MI interventions in healthcare. Considering the inadequate information provided in many MI intervention studies to assess the quality of the intervention, the review suggested the potential for using MI in healthcare settings although in a tentative way. The review also emphasized the difficulty in comparing MI intervention studies because of rather little information about how MI was implemented in the studies. Also, when MI was modified for a specific health behavior, there was not enough information about how MI was modified. As a result it was hard to compare MI across studies and to draw a firm conclusion about the effectiveness of MI. The reviewers have recommended research on examining the reasonable level of providers' effectiveness in MI and the optimal length of the intervention needed to be effective in facilitating behavior change. Notably, this review has stressed the need for a well-developed theory of MI that explains how to structure MI sessions.

Lundahl and colleagues (2010) reviewed 119 MI intervention studies across all settings and outcomes. The potential moderators for the effectiveness of MI examined in the review included: the comparison group, patient's level of distress, the type of MI (MI or motivational enhancement therapy (MET), use of manual, the role of MI in the treatment (as a prelude to another treatment or integrated with another treatment or standalone), fidelity to MI, who delivered MI (physician, counselor, etc.), mode of delivery (individual or group format). The mean effect size across all comparisons and

outcomes was 0.22, which indicated a small effect size. The lowest effect size for MI was -1.40 and the highest was 2.06. Overall, there was a wide variability in the effect sizes. The type of comparator group was found to be a potential moderator for the variability in the effect sizes. Studies that compared MI with a weak comparator (such as a wait list control group or a generic treatment as usual (TAU) group without a specific systematic treatment, i.e., not a theoretically based intervention) reported significantly higher effect sizes. On the other hand, MI did not show a significant advantage over specific treatments (like cognitive behavioral therapy) for any outcomes. The effect of MI was examined for various dependent variables (such as problem drinking, smoking, adherence to medical recommendations, etc.) and was found to be homogeneous on the whole. MET was found to be significantly more effective in facilitating change in patients compared to MI ( $g = 0.19$ ). Finally, the review underscored the need for research on the mechanism of action of MI that would explain the precise links between MI processes and outcomes.

To summarize, meta-analytic reviews on MI suggest a wide variability in the reported effectiveness of MI. Also, the duration of MI training has also been inconsistent across studies. One of the possible reasons for the difficulty in ascertaining the duration of MI training could be that it is hard to set a clear benchmark for proficiency in using MI given the partial understanding about how the components of MI work together in increasing the likelihood of change. In addition to the wide gap in the duration of MI training, meta-analytic reviews have also suggested that there is little information provided by MI studies about the internal validity of the independent variable or fidelity to MI, i.e. whether the independent variable (MI) was representative of the theoretical conceptualization of MI. Again the internal validity of MI in studies is difficult to assess

given the incomplete theory of MI. Also because most assessment scales focus on the presence/absence or frequency of use of MI skills without a clear indication whether the skills helped in increasing the likelihood of change in patients, it becomes even harder to ensure fidelity to MI even when the scores on the MI scales report fidelity to MI. Since MI fidelity may vary across studies, it becomes hard to compare MI studies as well.

To conclude, there is very clear need to develop an adequate theory of MI that will explain how MI spirit and skills help in the emergence of change talk and how that change talk in turn gets strengthened, ultimately manifesting as commitment to change. Overall, there is a need for an adequate theory of MI to address the problems stressed by the meta-analytical reviews on MI.

### **Foundations for an Adequate Theory of MI**

The foundations for the modified theory of MI will be discussed next. The foundations for the modification to the existing theory of MI were based on the insights generated from an exploratory qualitative discourse analysis study of MI (Krishna, 2010; Villaume et al., 2009). The exploratory qualitative discourse analysis study was undertaken to examine the problems healthcare providers (HCPs) had in being empathic during MI counseling after having completed 20 hours of training in MI at the Auburn University Motivational Interviewing Training Institute (AU MITI). Specifically, 136 providers had been videotaped interacting with standardized patients during 5 minute role plays (OSCEs). This study used qualitative discourse analysis of these videotaped role plays to identify generalizable patterns in how providers were using MI to respond to patients. This study initially started with a focus limited to the use of empathy in providers' responses to the patient's concerns. However, soon it was realized that



although providers may empathize with patients, they seldom used their understanding of patients to address the patient's issues. In other words, providers just empathized with their patient's issues/concerns and then moved on to implement their own agenda for the patient. This realization of a connection between empathizing with patient issues and subsequent addressing of patient issues contrasted with earlier studies in the field of healthcare that focused mainly on empathy as single act, i.e. as an immediate response to the expression of the patient's feelings. Thus, empathy was previously conceptualized as a single act that helped patients feel understood and accepted. The analysis of the videotapes, however, made it clear that empathizing and reflecting specific patient utterances was not sufficient in itself to address the patient's issues. Therefore, this study was broadened from a narrow focus on empathy with the specific expression of patient concerns to a more holistic examination of how providers' responded to and addressed patient concerns. This analysis of how providers responded to the patient's issues throughout the whole counseling session, led to several theoretical distinctions that serve as the foundation for the development of a potentially more adequate theory of MI.

**Types of resistance.** First, this study (2009) identified two different kinds of resistance, namely relational resistance and issue resistance. This distinction is an application of the widely accepted theorem that communication has two primary dimensions, namely the content and relational dimensions of communication (Watzlawick, Beavin, & Jackson, 1967).

- **Relational resistance:**

The first form of resistance is any reluctance by the patient about engaging in health behavior change because he/she does not like the way he/she is being treated

by the health care providers. It means “I am not going to even consider changing because I don’t like how you are talking to me and treating me”. Resolving relational resistance involves saving the patient’s face. There are three types of face (Littlejohn & Foss, 2005):

- Autonomy face:

Autonomy face is about the patient’s desire not to be told what to do or to be imposed upon by others. It is a wish to be perceived by others as a mature and self-reliant individual who is in charge of himself/herself and make his/her own decisions in life. When the patient’s autonomy face is threatened, then it is addressed through “tact” facework (Littlejohn & Foss, 1992). Tact is about respecting the patient’s autonomy and letting the patient know that he/she is in control of his/her health and he/she is the ultimate decision maker about what treatment options would best work for him/her in managing his/her health. Providers are conscious about not limiting the patient’s freedom to make the decisions. Instead of telling the patient what to do, MI providers often elicit the patient’s thoughts and inclinations before providing additional information so that the patient can make well informed decisions (Littlejohn & Foss, 1992).

- Competency face:

Competency face is about the patient’s desire to be acknowledged by others as an intelligent person who is wise and competent enough to make judicious decisions to manage his/her health. Competency face is addressed by “approbation” facework (Littlejohn & Foss, 1992). Providers express their confidence in the patient’s ability to manage his/her own health. Additionally,

providers avoid judging the patient's misconceptions about his/her drug or disease states or blaming him/her for his/her inadequate knowledge to manage his/her health condition. Providers rather focus on the patient's strengths and explore his/her knowledge while offering information to fill any gaps in the knowledge without making him/her feel incompetent (Littlejohn & Foss, 1992).

- Fellowship face:

Fellowship face is the patient's desire to feel accepted and cared for by the provider. A patient does not want to feel isolated and he/she would like his/her concerns to be received with acceptance and friendliness. Fellowship face is addressed by solidarity facework (Littlejohn & Foss, 1992). MI providers express acceptance of the patient and communicate care and concern for the patients. The patient is never left feeling that he/she is the only one in the world who entertains such strange concerns/thoughts in his/her mind. Rather, the patient's concerns are empathized with by the providers. The providers acknowledge the patient's feelings about his/her drug or disease states and use language that does not distance them from the patient (Littlejohn & Foss, 1992).

Providers threatening a patient's autonomy, competency or fellowship face could result in face loss and the patient feeling resistant. When there is resistance, the patient is unlikely to consider a behavior change. Gibb (1961) has underscored that a resistant patient is very little able to accurately perceive the logic and intent of providers. Rather the focus of the resistant patient is mostly on how he/she may win over the providers to escape a face loss or how to discount the providers' responses. In contrast, when the patient's relational resistance is reduced by the provider before

engaging the patient in the reasoning process (such as offering information), the patient will be more able to understand the logic/rationale or intent of the providers' recommendations (Gibb, 1961). Thus, it is extremely important for providers to address the patient's relational resistance before venturing to address the second form of resistance, i.e. the issue resistance that will be discussed next.

- Issue resistance:

On the other hand, issue resistance is any reluctance by the patient about engaging in health behavior change because his/her key concerns or issues have not been addressed. An example of issue resistance is "I don't need to take the prescribed medicines because I don't feel any symptoms of high blood pressure; I am in good shape and I feel fine." As long as the patient continues to embrace this line of reasoning, the patient will not feel any need to change his/her behavior. It is important that the provider address such patient issues in a targeted fashion. For example a patient with this line of reasoning should be offered information (content) that specifically explains how dangerously high blood pressure may not exhibit any symptoms that the patient would ever sense.

As mentioned earlier, the addressing of the patient's relational resistance should precede addressing the patient's issue resistance, especially when the patient comes to the provider with some degree of frustration. The patient's frustration could be due to a variety of reasons such past experiences of being shamed or blamed by providers, a long waiting to see the provider at the emergency room, etc. Unless relational resistance is addressed first, the patient is unlikely to even express his/her issue resistance. Once relational resistance is addressed, the provider could engage the patient's reasoning.

Providers' engaging the patient in the reasoning process after reducing relational resistance is likely to help the patient appreciate the providers' clinical expertise. Then, the patient is more likely to make necessary changes to improve his/her health based on providers' recommendations.

The challenge for providers is to respond to the patient's issue resistance without triggering increased relational resistance. In other words, when providers address the patient's issue resistance, it should not be at the expense of the patient's face. Let us consider the previous example of the patient who is under the misconception that he/she does not have high blood pressure because there are no symptoms indicative of the disease. In addressing this patient's misconception about the nature of the disease, the information provided to the patient that blood pressure is a symptom free disease should be offered in a manner that does not elicit resistance from the patient. The providers' telling the patient upfront that he/she is entertaining a misconception could result in face loss. Also, the providers' pushing or imposing their logical conclusion upon the patient could result in increased relational resistance. Thus, it is not sufficient for providers to share a sound argument or logic. Sensitivity to the patient's face should be simultaneously considered when addressing issue resistance. Please note that argument here refers to logical reasoning and not to argue with or confront patients as a form of interaction.

Previous conventional approaches to argumentation disregarded the need for saving the patient's face, and instead focused on the soundness of the arguments. According to the traditional philosophy of syllogistic arguments, if the minor premises and major premises are true, then the conclusion arrived at by the valid rearrangement of

the major and minor premises must also be true. The following example cited in Toulmin (1974) illustrates the major and minor premises.

Socrates is a man;

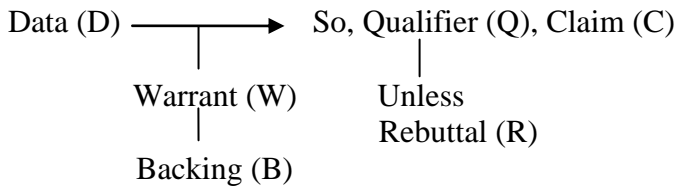
All men are mortal;

So Socrates is mortal.

The first premise is a minor premise that is singular as it is about an individual. The second premise is general or universal in nature because it refers to all men. According to the classical theory of argumentation, the claim or conclusion arrived at by the valid rearrangement of the minor and major premises must also be true. The limitation of this approach to argumentation is its rigidity because it takes for granted that the final conclusions must be accepted provided that the minor and major premises cannot be refuted.

Toulmin was critical of the traditional philosophy of syllogistic arguments and suggested a modified model that is less rigid, provides evidence for the claim and also provides room to question the strength and validity of the claim. According to Toulmin (1974), a formal warrant-using argument is valid if the data and warrant support the claim or conclusion made by the argument. Toulmin proposed the following structure of an argument:

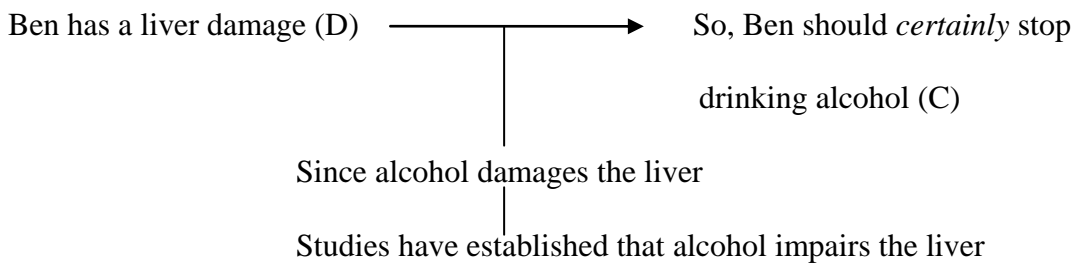
Figure 3. Toulmin's model.



Adapted from Toulmin, 1958

Let us consider the following argument as an example to illustrate the structure of the argument suggested by Toulmin.

Figure 4. Example illustrating Toulmin's model.



Toulmin (1974) discussed the following component parts of an argument:

- Data:

Data represent the facts that are put forward to support the veracity of the claim of an argument. In the previous example, Ben having liver damage is a fact based on the lab results of his liver function test and it is about an individual (and not a general statement).

- Warrant:

The warrant is a general statement that acts as a link between the data and the claim. In the previous example, the warrant is the link between Ben's liver damage and alcohol consumption. The warrant indicates the relevance of the data to the provider's claim (or conclusion) that Ben should stop drinking.

- Backing:

A backing is intended to establish the warrant. In the previous example, the backing for the warrant is grounded in the findings of the studies establishing that alcohol impairs the liver.

- Claim:

The claim in this argument is the provider's conclusion that Ben should stop drinking alcohol.

- Qualifier:

A qualifier signifies the strength of the warrant on the claim. In the previous example, the word "certainly" indicates the extent to which the warrant supports the conclusion.

- Rebuttal:

A rebuttal refers to exceptions or the conditions under which a warrant is no longer applicable to support the claim. However, in the previous example, there are no rebuttals as alcohol is always harmful to an individual with a liver damage.

Thus, backing, qualifiers, rebuttals were incorporated by Toulmin into his structure of an argument to provide greater support to the claim while lessening the rigidity of the conclusion. From the perspective of Toulmin's model, providers could influence the patient's reasoning process by either providing new data and/or a new warrant that could engage the patient's logical reasoning. In the example illustrating Toulmin's model in the Figure 4, assume that the patient in the example is diagnosed with liver damage. He is under the misconception that he is not affected by consuming alcohol because he can hold his alcohol very well (without appearing drunk to others). As



the patient does not experience any symptoms of liver damage while drinking, he continues to drink despite being asked by the provider to quit drinking. If the provider were to have some influence on the patient's decision about drinking, he could influence the data or the warrant as shown in the Figure 4. In other words, the patient's decision concerning drinking could be influenced by the provider sharing data and/or a warrant with the patient. The provider could offer data by showing the patient his liver function tests that could convince him that he indeed has liver damage. Also, the provider could influence the patient's decision by providing information that links alcohol consumption to liver damage. The data and the warrant could create a sense of discrepancy in the patient who earlier was under the misconception that drinking does not hurt his liver. The provider could also share an additional warrant that could explain why the patient may be able to hold his alcohol very well even when alcohol is aggravating his liver damage. Thus, providers could influence the patient's decisions about engaging in behavior change by influencing the data and/or the warrant.

An additional datum or warrant could influence the patient's decision by creating dissonance in the patient. Providers' sharing information with the patient in the form of data and/or a warrant could create disharmony in the patient's logical reasoning. This disharmony in the logical reasoning is experienced as a result of inconsistency between the patient's conclusion and the information shared in the form of data and/or warrant. In other words, the conclusion that the patient had arrived at previously now may seem inconsistent with the information shared by the provider. For example, the patient in the preceding example had concluded that he could continue drinking. The patient had reached this conclusion because he could hold his alcohol very well. Providers' sharing

of information that helps the patient to realize that alcohol worsens his liver damage even though he holds his alcohol fine could create dissonance in the patient. This dissonance is experienced because the patient's previous decision that he could continue drinking is disharmonious with the information revealed by the provider. This dissonance experienced by the patient could make him rethink and reconsider his decision about behavior change, i.e., whether or not he should continue drinking.

If providers were to apply Toulmin's model, they would use data and a warrant to lead the patient to a new conclusion or a claim. For example, in the previous example, the provider could lead the patient to conclude that since drinking aggravates his liver damage, he should stop drinking. In other words, it is the provider who reaches the conclusion that the patient should quit drinking given the well established data/warrant that supports his/her conclusion. Since the data and warrant irrefutably supports his/her conclusion, he/she would expect the patient to acknowledge the conclusion (advice), i.e., to stop drinking. Thus, according to Toulmin's model, if the supporting information in the form of data, warrant, backing, etc. is correct, then the conclusion should be acknowledged.

Nevertheless, even Toulmin's approach to reasoning if applied by providers to address the patient's issue resistance could threaten the patient's competency face. For example, let's consider the following patient-provider interaction where the provider reasons with the patient who is on a heartburn medication:

- 1 Patient: Initially when I started taking my medicine, it seemed to be working pretty well, but lately I am not sure if it's working

anymore as I am getting heartburn attacks at night and it's been making it difficult for me to get to sleep at night.

2 Provider: So you are concerned that the medicine is not working anymore.

3 Patient: Yeah.

4 Provider: May I share with you some information to address your concern?

5 Patient: Sure.

6 Provider: Your medicine was initially effective in controlling your heartburn and you are still continuing on the same medicine. Moreover, you are getting heartburn only at night, which means that your medicine is effective throughout the day. This suggests that the problem is not with the medicine but something must have changed in your life that has countered the effectiveness of the medicine. So you need to continue taking your medicine as prescribed. Tell me, have there recently been any changes in your diet, drinking, smoking or how you take your medicine?

7 Patient: Well... I have been living on the same diet and nothing has changed. I just thought the medicine is not helping me.

In the preceding example, the provider responded to the patient's concern about his perception that the medicine is no longer effective with logical reasoning. Although the provider's logical reasoning in utterance #6 was supported by his medical expertise, it turned off the patient from accepting his logic as is evident in utterance #7 because it caused face loss for the patient. In utterance #7, the patient restates his doubt about the effectiveness of his medicine because the provider's reasoning invalidated the patient's

concern. In an attempt to save his/her face, the patient repeated his concern without accepting the providers' reasoning.

Patients may not accept providers' reasoning and/or recommendations just because of the soundness of the providers' reasoning/logic. Imposing a logically sound conclusion on the patient could threaten the patient's autonomy face. When providers' logic is put forward in a way that shows lack of respect for the patient's face, it creates relational resistance in the patient. Thus, while addressing issue resistance, providers could increase the patient's relational resistance if the patient's face is not respected. In other words, it is extremely important for providers to offer information to the patient without threatening the patient's face. The soundness of reasoning could help as long as there is respect for the patient's face. In the preceding example of the patient-provider interaction, the patient's competency face was threatened because the provider reasoned through to conclude that the medicine in fact is working, and there was something not right in the patient's life style habits that countered the effectiveness of his/her medicine. Instead of telling the patient what the conclusion ought to be, if the provider had explored the patient's perspective or what he/she might conclude given the information provided to him (in the form of data and warrant), it may not have threatened the patient's face. In other words, the provider could have let the patient make the conclusion after providing the data and the warrant as can be seen in a different response to the patient who claims that his heartburn medicine is not working anymore.

1      Patient:            Initially when I started taking my medicine, it seemed to be working pretty well, but lately I am not sure if it's working

anymore as I am getting heartburn attacks at night and it's been making it difficult for me to get to sleep at night.

2 Provider: So you are concerned that the medicine is not working anymore.

3 Patient: Yeah.

4 Provider: May I share with you some information to address your concern?

5 Patient: Sure.

6 Provider: Your medicine was initially effective in controlling your heartburn and it seems like it continues to help relieve you from heartburn attacks during the day time.

7 Patient: Yeah, it's only during the night that the medicine seems to stop working.

8 Provider: How about if we explore a little bit about what might be making the medicine seem ineffective at night?

9 Patient: Sure

10 Provider: What time do you eat your dinner and when do you go to bed at night?

11 Patient: I usually eat my dinner at around 9 and go to bed at 10.

12 Provider: May I share with you what concerns me?

13 Patient: Okay

14 Provider: When you lie down in bed within two hours of your last meal, your stomach acid enters your esophagus and counters the effect of your medicine to prevent heartburn. Where does this information leave you now about your medicine?

15 Patient: I didn't realize eating just before going to bed reduced the benefits from my medicine. Well I will wait two hours after my meals before going to bed.

In the preceding example, in utterance #6, the provider offers information and the patient makes sense of the information provided to come to his conclusion in utterance #7. Now the patient understands that the medicine does help him during the day and it is only at night that it seems to be ineffective. Thereafter, the provider tries to address the patient's current concerns, which is the ineffectiveness of the medicine only at night. In utterance #14, the provider again offers the necessary information to the patient that could help the patient come to his own conclusion about taking the medicine and as seen in utterance #15, the patient comes to his own conclusion.

Thus, in MI, it is very important to explore the patient's issue resistance and offer targeted information to address those concerns, yet without telling the patients what the conclusions ought to be. Also, the information is offered in a manner that does not invalidate the patient's concern but helps the patient to arrive at a conclusion. Moreover, when the patient makes the conclusions, he/she is more likely to take ownership of his/her decisions. In short, the provider's role during MI counseling is to facilitate the patient's reasoning process to assist him/her in resolving his/her issue resistance and finally to explore the patient's decisions about engaging in behavior change.

**Using MI skills without addressing issue resistance.** Secondly this study identified that providers often overlook/ignore the patient's issue resistance and get stuck during the interaction. They get stuck after using certain skills because apparently they do not see that the skills serve to address the patient's issue resistance. The application of

skills without regard for the patient's concerns and issues didn't serve to address the patient's needs. This study reported that providers often supported self-efficacy when a patient expressed a significant feeling. For example, a patient says that "I'm shocked my A1c didn't come down a lot more because I had really been exercising hard and watching what I ate." and the provider responds by saying "That's really great that you have been exercising very well and that you have been managing your diet as well. I really want to commend you for taking these positive steps. Tell me more about your exercise. How often do you exercise?" In this preceding example, the provider digressed from the patient's issue; the patient is experiencing dissonance (surprise) because on one hand she had been engaging in positive health behaviors (like exercise and diet management) while on the other hand her blood pressure continues to remain very high. The provider completely overlooked the patient's issue (which is her experience of dissonance) and went on to discuss the patient's exercise habits. It was found that these providers often never addressed the patient's issues in any depth, although the provider did intensively support self-efficacy. In other words, these providers apparently lost sight of the patient's key issues in their preoccupation with applying certain individual MI skills. They were looking for opportunities to apply skills instead of responding to the patient's concerns. The findings of this study contribute to the theory of MI by suggesting that the flow of effective MI interaction derives from responding to and addressing patient issues rather than from the application of particular techniques or skills. MI theory would be more powerful and lucid if it identified the process by which the patient's relational resistance is reduced and the patient's issue resistance is addressed through the medium of MI skills.

**Assessment of MI ignores addressing of the patient's issue resistance.** Thirdly, the findings of this study suggest that the current approaches to assessment of fidelity to MI overlook the providers' addressing of the patient's issue resistance. The assessment of fidelity to MI based on the frequency of providers' use of MI skills may not reveal how well providers have advanced on both the dimensions of MI, i.e. addressing relational and issue resistance. This study found that when providers used empathy as a skill, they often reflected surface (trivial) details of the patient's responses. Although these providers have used a MI skill, it may hardly help in influencing the patient's decisional balance. For example, if providers reflect a patient's response several times, then these providers may score high on MI assessment scales irrespective of whether their reflections focused on substantive issues or trivial details of the patient's responses. When assessment scales focus on counting MI skills (e.g., how many times provider asked "open-ended questions", engaged in reflective listening, expressed empathy, how much time was spent listening to patients, what was the number of reflections to question ratio, etc.), they no longer evaluate providers based on how effectively they addressed the patient's issue resistance without eliciting relational resistance from the patient. The use of MI skills without addressing the patient's issues is unlikely to increase the patient's motivation to consider a change because the patient's decisional balance remained unchanged. If providers' use of MI skills did not help in engaging the patient in the reasoning process, then the skills had little impact on the patient's final decision to engage in behavior change. For MI to be effective, providers should understand the patient's issues, address those issues with targeted information, and invite the patient to reconsider his/her decision about engaging in behavior change. Therefore, this study suggested the need for



an assessment tool that focuses on the providers' effectiveness in addressing the patient's relational and issue resistance. The use of individual MI skills has to be evaluated in the context of how well these skills have advanced MI along its two foundational dimensions of addressing relational resistance and addressing issue resistance.

### **Significance of an Adequate Theory of MI**

An adequate theory of MI could help address the following major problems arising due to the incomplete understanding of the theory of MI:

1. Wide variability in the results of MI studies.
2. Difficulty in ensuring interventions' fidelity to MI.
3. Difficulty training providers in MI.

**1. Wide variability in the results of MI.** The wide variability in the results of MI intervention studies may be because of the difficulty in operationalizing MI consistently across studies. The lack of a clear theory of MI could allow for a wide variability in implementing MI thereby making it hard to distinguish between studies that have fully implemented MI and those that partially implemented it. Also, the systematic reviews of the studies on MI (Hettema, Steele, & Miller, 2005; Lundahl et al., 2010) have suggested that the results have been quite variable. Some studies report:

- a. MI to be exceptionally more effective than the comparison group with large to moderate effects.
- b. MI to be not significantly more effective than the comparison group.
- c. MI to be significantly less effective than the comparison group.

Next, the three groups of studies will be discussed that indicate a wide variability in the effectiveness of MI.

a. MI as exceptionally more effective than the comparison group:

Many of the MI intervention studies (Beckham, 2007; Berger et al., 2005; Bien, Miller, & Boroughs, 1993; Brown & Miller, 1993; Handmaker, Miller, & Manicke, 1999; Miller, 1983; Miller et al., 1993; Miller & Sovereign, 1988; Watkins et al., 2007) have reported extremely large to moderate effect sizes.

On examining some of the initial studies on MI reporting large effect sizes especially those by Miller and colleagues (Bien, Miller, & Boroughs, 1993; Brown & Miller, 1993; Miller et al., 1993), it was observed that these studies had used Brief Drinker's Check-up (BDU) as a prelude to MI counseling. The BDU is a structured interview intended to increase a patient's awareness about the risk of alcohol related impairment in his/her lives and to assess the participant's problems concerning drinking (Miller & Sovereign, 1988). The patient's concerns were explored by the providers during the assessment sessions that preceded the MI counseling sessions. As the MI sessions succeeded the BDU within a week's time, the providers may have been familiar with the patient's core concerns during the MI counseling sessions. Moreover, it has been emphasized that the providers' role during the counseling session following the BDU was essentially to elicit the patient's concerns about alcohol related issues and to respond to his/her questions/concerns. Miller and colleagues stated that "The information (from BDU) is presented as objective data, but the focus is on client's own concerns and reactions rather than on counselor's interpretations" (Miller & Sovereign, 1988, p.257). Furthermore, the MI intervention succeeding the BDU emphasized reducing resistance/defensiveness in patients while responding to the patient's concerns by offering targeted health information. To state

in Miller and colleagues' own words "Throughout the presentation (counseling), the client's questions are answered... Reflective listening ('accurate empathy') is the predominant style for responding to client statements" (Miller & Sovereign, 1988, p. 258). In addition to the emphasis laid on answering the patient's questions/concerns, Miller and Sovereign also stressed empathy as a main style of responding to the patient. It is clear that empathy was not just viewed as a tool to improve the relationship with the patient but was intended mainly to understand the patient's concerns/questions and to offer targeted information to address his/her concerns.

These studies that focused on understanding and responding to the patient's concerns were highly successful in facilitating behavior change in patients. Brown and Miller (1993) reported an extremely large effect size of 0.92 for the serum alcohol concentration (SEC) with MI intervention for patients with problem drinking. Similarly, Bien, Miller & Boroughs (1993) reported an extremely high effect size of 0.72 in facilitating behavior change in patients who were being treated for alcohol abuse. Likewise, Miller, Benefield and Tonigan (1993) reported a 57% reduction in substance abuse in patients. On the same note, Handmaker, Miller and Manicke (1999) showed a significant reduction in alcohol consumption contributing an effect size of 0.5 in pregnant women.

In summary, the success of these initial studies of MI by Miller and colleagues may have been because of the emphasis laid on eliciting the patient's concerns and responding to those concerns by providing targeted information in a manner that does not elicit defensiveness in the patient. In other words, MI

interventions that specifically focused on exploring and addressing the patient's concerns in an empathic manner were highly effective.

The study by Berger, Liang and Hudmon (2005) further demonstrates the importance of exploring and addressing the patient's concerns in an empathic manner. Like the early studies by Miller and colleagues, this study by Berger and colleagues also focused on eliciting the patient's concerns, responding to his/her concerns/questions by providing targeted information in a non-judgmental manner. Berger et.al applied MI in the telephonic counseling of multiple sclerosis (MS) patients who were candidates to discontinue their use of the MS medication (Avonex). This study reported a significant reduction in the discontinuation rate of the MS medication from 8.7% to 1.2% due to the use of MI, indicating a large effect size. The method used in this study was such that it focused on the patient's concerns. The study was done in two phases: The first phase of this study focused on exploring the concerns that resulted in the patient's discontinuing their medication. The results from the first phase of the study mainly suggested that patients discontinued their therapy because of side effects with the medicine. Knowledge of the patient's concerns for discontinuing their medication was important for addressing those concerns. The second phase of this study used a software program that considered possible MI responses to the patient's concerns. During the second phase of the study, the program facilitated the providers to offer targeted information to the patient that was directly relevant to his/her concerns. The program not only took into consideration the concerns of the patient gathered from the first phase of the study, but the program also assisted the providers in entering any new

concern/questions/information shared by the patient during the interaction. During the interaction with the patient, any further concerns expressed by the patient were fed into the program by the providers and in turn the program suggested an appropriate response to the provider in responding to those concerns. Thus, the program guided the providers in not only eliciting and acknowledging the patient's concerns but it also helped them in addressing those concerns with targeted information in a non-judgmental manner. The result of this study represented a large experimental effect size that agrees with the initial studies of MI by Miller and colleagues.

In short, exploring and addressing the patient's concerns may be key to the effectiveness of MI as suggested by the preceding studies by Berger et.al and those initial studies by Miller and colleagues. This attribution of the effectiveness of MI to providers' eliciting and addressing of the patient's concerns suggests a second dimension for the effectiveness of MI, i.e. addressing issue resistance in addition to the first dimension, which is addressing relational resistance.

b. MI to be not significantly more effective than the comparison group:

Many subsequent studies (Baker et al., 2006; Befort et al., 2008; Colby et al., 1998; DiIorio et al., 2008; Kuchipudi, Hobein, Flickinger, & Iber, 1990; Maisto et al., 2001; Petersen et al., 2007; Schwartz et al., 2007; Winhusen et al., 2008) including those by Miller and colleagues (Miller & Mount, 2001; Miller, Yahne, & Tonigan, 2003) could not substantiate the initial reports of MI to be an extremely effective intervention with large effect sizes in promoting behavior change in patients.

Some of these studies (Baker et al., 2006; Colby et al., 1998; DiIorio et al., 2008; Miller et al., 2003; Winhusen et al., 2008) used manual-guided MI or followed a standardized protocol for delivering MI. The meta-analytic literature (Hettema et al., 2005; Lundahl et al., 2010) on MI suggests that manual-guided MI is less effective in promoting behavior change in the patient. Providers using a manual to counsel the patient may pay relatively little attention to the patient's needs, concerns, motivation, etc.

Thus, manual driven MI may focus less on the patient and more on the manual. It is likely that having to follow a certain script can reduce the providers' focus on the patient. A qualitative study by Villaume and colleagues (2009) suggests that providers who have a predetermined agenda for their counseling sessions are less likely to understand and respond to the patient's core concerns with the result that the patient can often leave the counseling sessions with his/her concerns unaddressed. This failure to address the patient's concerns might explain why some implementations of MI could be less effective in promoting behavior change in patients than implementations of MI that specifically sought to empathize with patient's concerns and to address those concerns.

Moreover, the use of a standardized protocol to counsel patients without taking into consideration the variability in patients with regard to his/her goals/values and readiness to engage in behavior change could be unproductive. For example in the study by Baker and colleagues (2006) MI intervention followed a sequence where each successive session was designed presuming that the patient's level of readiness to engage in behavior change would increase with the succession of MI

sessions. Thus, patients who do not improve in their level of readiness with successive MI sessions received an intervention that might not have matched with their motivation to change their behavior. This mismatch between the patient's level of readiness and the prescribed intervention strategy could have possibly resulted in these studies not showing a significant difference between the intervention and the comparison groups.

The use of a script or using a standardized counseling protocol for all patients may reduce the patient-centered characteristic of MI. In other words, the intervention may lose its ability to see each patient as unique and as experiencing distinctive problems in managing their health. The strength of MI over other conventional approaches to patient care is the flexibility of the provider in meeting the patients where they are at in their level of readiness to engage in behavior change. It is difficult for providers to be effective with patients when they have to follow a predetermined protocol during the counseling. This excessive focus on using protocols/scripts may be because the theory of MI has shifted its centrality from following the patients to becoming skillful in the use of MI tools. In other words, providers seem to think that they have to focus on using MI skills in order to be a MI provider instead of being focused on the patient's concerns.

Furthermore, in contrast to the initial studies that focused on eliciting and responding specifically to the patient's concerns, some of the later studies (Maisto et al., 2001; Miller & Mount, 2001; Miller et al., 2003; Schwartz et al., 2007) showed little evidence that the patient's concerns about engaging in behavior change were elicited or addressed. The focus of MI sessions apparently shifted to eliciting change

talk from the patient or enhancing motivation to change through the use of skills.

Instead of viewing change talk as an outcome of eliciting and addressing the patient's core concerns, eliciting change talk apparently has become the central focus of MI counseling. The providers' using MI skills by itself may not result in change talk unless the skills are targeted to address the patient's core concerns in a non-judgmental manner. The lack of significant effects reported in these studies may be attributed to the focus of MI theory digressing from addressing the patient's concerns to the enactment of provider behaviors (such as eliciting change talk/using MI skills).

c. MI to be less effective than the comparison group:

In terms of the variability in the reports about the effectiveness of MI, there are studies on one extreme that show large effect sizes as discussed previously, while on the other extreme there are MI intervention studies (Ahluwalia et al., 2006; Rohsenow, Monti, Colby, & Martin, 2002) reporting standard care or brief advice to be significantly better than MI intervention.

These studies by Ahluwalia et.al and Rohsenow et.al had the providers in the comparison groups (providing education or brief advice), focusing on the patient's need. Ahluwalia and colleagues (2006) reported the comparison group to be twice as effective as MI intervention indicating a large effect size. The analysis of the treatment met by comparison group indicated that the patient's perspectives about smoking were elicited and also the patients were provided necessary information. Apparently the patients may have had their concerns addressed through the information offered by the providers. Likewise, the providers in the comparison



group in the study by Rohsenow and colleagues (2002), assisted their patients by providing the information asked by the patients.

Although the providers in both of these preceding studies (in which MI was compared with either brief advice or educational session) may not have used any specific MI skills, they were responding to the patient's questions/concerns. On the other hand, in both of these studies there is little evidence that the providers in the MI intervention group focused on eliciting and addressing the patient's core concerns that affected the patient's ability to engage in the target behavior. Even if brief advice is offered focused on the patient's concerns/questions, then it is not surprising that it could facilitate behavior change in patients. On the other hand, even if providers offering MI intervention use various MI skills such as asking open-ended questions or responding with reflective statements, but without addressing the patient's concerns, it is less likely to promote behavior change in patients. The qualitative study by Villaume and colleagues (2009) reported that providers often do not address the patient's concerns even when they have shown understanding of the patient's perspectives by reflecting the concerns. Therefore, the theory of MI should go beyond the use of skills to see how providers use the MI skills/toolset to respond to the patient's concerns.

To conclude the discussion on the wide variability of MI studies, there are studies showing a wide range of results; some studies show MI to be exceptionally more effective than the comparison group, some studies show MI to be no more effective than the comparison group, and then there are studies showing MI to be significantly less effective than the comparison group. The studies showing large effect sizes often had the

patient's concerns explored and addressed. On the other hand studies following a standard protocol or a specified sequence to counseling patients ignoring the unique needs of individual patients were less effective in improving outcomes. Additionally, over emphasizing the need for providers to use MI skills or too much emphasis on eliciting change talk without understanding how the skills help in eliciting change talk could be counterproductive and may result in poor outcomes as discussed earlier. On the other hand comparison groups that focused on the patient's concerns and offered brief advice were observed to be effective. Literature (Bien, Miller, & Tonigan, 1993; Miller, 1996) has also suggested that brief interventions involving advice and encouragement were as effective as provider-administered interventions. Based on these findings, it is proposed that providers' understanding of the patient's issues/concerns, followed by specifically addressing those issues in an empathic manner are crucial for the success of MI in eliciting change talk from the patient.

In addition to the wide variability in the results of MI studies as discussed earlier, the other limitation of an inadequate theory of MI is the difficulty in ensuring the fidelity of MI interventions.

**2. Difficulty in ensuring fidelity of MI interventions.** The current understanding of MI theory makes it difficult to assess the fidelity of MI interventions. Some of the commonly used scales to assess MI interventions are Motivational Interviewing Treatment Integrity Code (MITI), Motivational Interviewing Skill Code (MISC), etc (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005). The drawbacks of the commonly used scales to assess fidelity to MI are:

- The scales assess fidelity based on individual provider behaviors.

- The scales are unidimensional in nature.

Both of the previously mentioned drawbacks of the commonly used scales will be illustrated in detail next.

- The scales assess fidelity based on provider behaviors (such as the use of MI skills):

The commonly used scales to evaluate fidelity to MI are focused on the providers' behaviors without taking into consideration if the provider behaviors helped in eliciting and addressing the patient's concerns. The scales focus heavily on the presence and frequency of the use of MI skills but one may not know if the presence and frequency with which the skills were used helped the patients in any way. For example, let us say that the score on the scale suggests that the provider was high on using reflective skills. In other words, the score suggests that the provider reflected the patient's responses. However, it is not clear whether the provider reflected surface details (that are not the crucial issues affecting the patient's ability to engage in behavior change) of the patient's responses or the provider reflected substantial issues or concerns expressed by the patient. To further explain the limitation of these scales' reliance on the presence and frequency of the use of MI skills, let us consider the example of the study by Miller and Mount (2001) where they used MISC to assess the fidelity of the providers to MI. The scores on the scale suggested that the providers showed an extremely significant improvement in the number of reflective listening (empathic) responses ( $p \leq .001$ ) and reflections to question ratio ( $p \leq .007$ ). However, the scores on the scale provide no information about the nature of providers' reflective responses. The study by Villaume and colleagues (2009) suggest that providers often reflect patient responses on a surface

level, i.e. providers usually reflect surface details of patient responses and often overlook/ignore the substantial core concerns affecting the patient's ability to engage in behavior change. Thus, a general score on reflective listening responses give little indication whether these reflections helped in understanding the patient's substantial core concerns about behavior change. Moreover, the reflective listening skills do not provide any information whether those concerns were addressed by the providers. Thus, despite the study by Miller and Mount (2001) suggesting that the providers showed an extremely significant improvement in reflective listening responses and reflections to question ratio, in addition to a significant improvement in MI consistent responses, this study reported that the providers' behavior change was not sufficient enough to bring about a meaningful and significant behavior change in the patients. In other words, an improvement in scores on the MI scales that focuses heavily on the presence and frequency of skills may not be a sufficient indication about its value in facilitating behavior change in the patient. The scales should indicate whether providers reflected the patient's substantial concerns/issues and also whether these issues were addressed by the providers with targeted information in a manner that shows respect for the patient's face. Thus, the scales should focus more on how effectively providers reflected and addressed the patient's core issues.

Hence, it is suggested that the scales assessing fidelity to MI should not be heavily focused on the presence and frequency of MI skills, but should take into consideration how the use of the skills helped elicit and then address the patient's concerns in an empathic manner. The use of an improved assessment scale that takes into consideration whether the use of MI skills facilitated both exploring and

addressing the patient's concerns will also help in sorting out studies that truly implemented MI to address the patient's concerns from those MI studies that used MI skills but did not address the patient's concerns. The result will be a more valid and reliable estimate of the effectiveness of MI. The development of the MI scales that ascertain that providers' use of skills facilitated exploring and addressing of the patient's concerns would require the evolution of the theory of MI.

In addition to the limitation of the MI scales that they focus heavily on the presence and frequency of MI skills, the other weakness of these scales is that they are uni-dimensional, which will be discussed in detail next.

- The scales are unidimensional in nature:

The MI assessment scales are unidimensional in nature. In other words, the scales give one final score that signifies the providers' fidelity to MI. One of the concerns from the assumption of unidimensionality of MI counseling is that it ignores the possibility of other dimensions to the effectiveness of MI that cannot be explained from a single score obtained from a summated scale that measures fidelity to MI. To illustrate this further, consider a provider who is extremely good at understanding the patient's core concerns and he/she reflects the patient's concerns in a manner that makes the patient feel understood. The patient is likely to feel that the provider was non-judgmental and empathic. The provider will also score high on reflective listening and empathy. But, let us say that this provider changed the topic to discuss another issue that seemed more important to the provider. In other words, the provider did not address the patient's concerns. In the previous example of the provider, the single score on the summated scale will not tell us where the provider

failed or needed improvement in counseling the patient. In other words, the final score on the scale could not differentiate between the provider's ability to understand the patient and his/her ability to respond to the patient's concerns precisely with relevant information. Consequently, the final score on these scales do not help in providing a precise feedback in terms of what needs to be improved in the trainees. Contrary to the preceding example, consider the example of a provider who although was very judgmental and directive but addressed the patient's concern with targeted information. In other words, the provider was not respectful of the patient's face but was very clear and specific in responding to the patient's concerns. The provider may score low on the MI assessment scales and the score again could not distinguish between the provider's ability to be respectful of the patient's face and his/her ability to address the patient's concerns in a targeted fashion. Thus, the final scores on these scales may not actually reflect how well the provider counseled the patient because of these scales being unidimensional in nature. Thus, it may be suggested that to ensure the interventions fidelity to MI, the theory of MI should be developed further to assess its dimensionality.

The preceding section discussed how an inadequate theory of MI makes it difficult to ensure fidelity of interventions to MI because of the lack of understanding of the dimensionality of MI and the MI scales' heavy reliance on providers' use of skills. Additionally, an inadequate theory of MI also makes it hard to train providers in using MI, which will be discussed in the following section.

**3. Difficulty training providers in MI.** Given the lack of a theory fully specifying how MI spirit and individual MI skills are combined to elicit change talk, it is hard to determine the nature and duration of training that is required to assure the effective implementation of MI. Thus, there is a wide variability in the duration of MI training ranging from 2 to 31 hours (Dunn et al., 2001). Some studies (Brown & Oriel, 1998; Burke et al., 2006; Poirier et al., 2004) on the effectiveness of MI interventions have reported a shorter duration of training (less than 8 hours) that may not be adequate to allow providers to fully master MI. Other studies (Baer et al., 2004; Befort et al., 2008; DiIorio et al., 2003; Golin et al., 2006) have relied on approximately 20 or more hours of training to ensure that providers were well grounded in the use of MI. This lack of clarity in the optimal duration of time needed to train providers in MI may be because of the uncertainty in the nature of training. To assess how much training is needed, it needs to be described what it takes to elicit change talk from patients using MI skills, and this in turn requires a further development of the theory of MI.

To sum up, there is an apparent need to develop an adequate theory of MI that will explain how MI spirit and skills help in producing an effective interactional flow that results in the emergence of change talk and how the change talk in turn gets strengthened, manifesting as commitment to change. Without such a fully specified theory of MI it is difficult to assess the effectiveness of MI in facilitating voluntary health behavior change by patients.

### **Research Proposition**

In short, this study proposes that competency in using MI in healthcare depends upon how effectively providers reduce the patient's relational resistance and address the

patient's issue resistance. So the focus of the MI theory should not be on the skills per se but on how effectively providers work on these two basic dimensions. Furthermore, providers do not work on these two dimensions independently or sequentially. Providers have to work on both dimensions simultaneously insofar as the addressing of issue resistance often creates additional relational resistance. For example, in the course of addressing issue resistance providers may have to correct mistaken understandings held by patients. Consider the next example of a patient who was prescribed a daily medication for high blood pressure but is not taking the medication because he/she has no symptoms. This patient believes that he/she will take the medicines when initial symptoms of blood pressure arise.

- 1      Provider:      Your blood pressure is very high and your physician prescribed this medicine to bring it down.
- 2      Patient:        I am not sure if I need this medicine because I feel perfectly fine.
- 3      Provider:        So you are uncertain about the need to take your medicine because you feel healthy.
- 4      Patient:        Yeah that's right.
- 5      Provider:        Well, even though you feel fine, your blood pressure is very high. You seem to have a misunderstanding that high blood pressure can be felt. But this is not true and I would suggest that you take your medicine every day as prescribed to reduce your chances of a heart attack or stroke.

In the previous example, the provider reflected or empathized with the patient's concern/issue in utterance 3 and then addressed it in utterance 5. However, the addressing



of the patient's issue resulted in additional relational resistance because it threatened the patient's competency face by labeling the patient as "misunderstanding" and because it violated the patient's autonomy by telling the patient what to do. In MI there is a synergistic effect that occurs when the addressing of issue resistance does not trigger relational resistance. MI is most distinctive when the patient's issue resistance and relational resistance are addressed hand-in-hand. In other words, MI achieves its greatest power when both issue resistance and relational resistance are addressed in an integrated fashion that cannot be explained as the simple sum of the effects of addressing relational and issue resistance independently.

In summary, there is a need for a change in the focus of MI theory. Previous MI theory proposed that change talk is an additive result of MI spirit and MI skills. The theory of MI deriving from the discourse study of MI (Villaume et al., 2009) suggests the hypothesis that the effectiveness of MI is based on the synergistic effect of simultaneously addressing the patient's relational and issue resistance. This dissertation will use the methodology of message effects research to validate empirically that the effectiveness of MI is judged and perceived as the simultaneous interaction of addressing the patient's relational resistance and addressing the patient's issue resistance.

### **Message Effects Research**

This study will use the methodology of message effects research as a first step in empirically validating the two dimensional theory of MI proposed above. Message effects research examines how variations in the structure and functioning of messages lead to systematically different communication outcomes, usually in the form of evaluations, judgments or attributions. Typically, stimulus messages are constructed to operationalize

all combinations of the message variables that are being investigated. For example, a study investigating four different types of speeches given by three different types of speakers would require 12 different types of message/speaker combinations to be operationalized. Furthermore, according to Jackson (1992), stimuli must be replicated within each combination of message variables. Thus, in the example study, minimum replication would require two stimulus messages to be operationalized for each of the 12 different types of message/speaker combinations. Participants in the study would then be asked to view these 24 stimulus messages in random order. Immediately after viewing a stimulus message, the participants rate that message on Likert-type items that operationalize relevant dependent variables in the form of judgments, evaluations and/or attributions. These ratings are then analyzed in a mixed model repeated measures MANOVA with the specific stimulus messages nested as random effects within the combinations of the message variables. In the previous example study, the stimulus messages would be nested as random effects within the design of four types of speeches by three types of speakers. Consequently, such a design can test for the main effects of types of speeches and types of speakers as well as for the interaction effect of types of speeches by types of speakers.

Bodie (2002) and Bodie and Villaume (2008) used message effects methodology to examine how three underlying dimensions of handholding led to systematically different attributions of power, intimacy and dominance. Based on qualitative observational studies, they proposed three systematic dimensions of variation in how male-female dyads held hands with each other. The three dimensions were

1. Type of handholding

- a. Palm to palm
  - b. Interlocking fingers
  - c. Disproportionate
2. Distance between the elbows
    - a. Close
    - b. Far
3. Hand dominance
    - a. Dominance possessed by person on right
    - b. Dominance possessed by person on left

Given this 3 x 2 x 2 design, 24 photos of male-female handholding were taken with two replications within each cell of the design. The photos were displayed in random order on a computer using Authorware. The participants in the study were students in a basic public speaking course who were given extra credit for their participation. After viewing each of the 24 photos, they rated each male-female pair in terms of intimacy and relational power. Results indicated that the attributions of intimacy and relational power systematically differed depending upon how male-female dyads held hands with each other. There were significant main effects for the type of handholding, distance between the elbows and hand dominance. Also, there were significant interaction effects for the type of handholding and distance between the elbows, type of handholding and dominance, and for distance between elbows and hand dominance. The study clearly demonstrated that the three dimensions of handholding systematically contributed to attributions of intimacy and relational power.

Similarly, many other studies (Ben-David & Schneider, 2005; Villaume, Jackson, & Schouten, 1989) have used message effects research to investigate the attributional structure of how people make sense of and react to systematically different types of messages.

**Reasons for using message effects research method.** The methodology of message effects research is appropriate for this study because it investigates people's reactions to different strategies used by healthcare providers in counseling patients without actually requiring the participants to be patients in the counseling sessions. Not only can this approach help identify those counseling strategies that are perceived as helpful in facilitating behavior change but it can also determine the dimensional structure of these perceptions. Consequently, it is very appropriate as a first step in providing empirical validation of the two dimensional theory of MI previously explained.

If this preliminary investigation validates the hypotheses of this study, it could be followed by a large scale intervention study in real world settings. A large scale intervention study is not feasible as an initial exploratory study because of the investment of extensive resources required to carry out the study. In fact, undertaking such a major study would be meaningful when there is some preliminary evidence indicating the potential validity of the study's proposed hypotheses. The results of this dissertation would count as such preliminary evidence.

Message effects research does offer some specific advantages over interventional studies in terms of providing initial validation for a two dimensional analysis of MI.

1. Because message effects research relies on the systematic construction of message stimuli, differences in the messages operationalizing the cells of the

study design can be clearly delineated and validated, thereby increasing the power of the statistical analysis.

2. Message effects research allows for repeated measures designs that cannot be achieved in intervention studies with actual healthcare providers and patients. This advantage also increases the power of the statistical analysis in message effects research because the participants (who provide the ratings) serve as their own controls.
3. The systematic influence of different personalities of the patients and providers can be partialled out in message system analysis through the use of nesting and/or crossing that also increases the power of the analysis.
4. Finally, message effects research can control confounding variables more successfully than intervention studies utilizing actual counseling sessions with real patients. For example, in an intervention study it is difficult to control extraneous variables like the literacy level of patients and/or the patient's specific healthcare issues. However, in message effects research these variables can be controlled across all combinations of stimulus messages thereby reducing error variance and increasing the power of the statistical analysis.
5. Message effects research also avoids an ethical problem that is inherent in intervention studies. Specifically, in order to operationalize different combinations of addressing relational and issue resistance, healthcare providers would be required to treat some of their patients poorly by ignoring and not addressing the core issues of their patients in order to represent the cells of the study design. Such a poor treatment of patients is only portrayed in message

effects research whereas it would need to be implemented in intervention research.

Thus, because of the previously mentioned reasons, the methodology of message effects research will be used in the initial investigation of a two dimensional analysis of MI.

### **Independent Variables**

There are two independent message variables in this study, namely:

1. The level of addressing relational resistance by the provider.
2. The level of addressing issue resistance by the provider.

### **Operational Definitions**

The operational definitions of these two independent message variables and their manipulations are described next.

**Addressing relational resistance.** Relational resistance is defined as providers' causing face loss for patients. The face loss results from the providers threatening the patient's autonomy face and/or competence face and/or fellowship face (Littlejohn & Foss, 1992).

- **Autonomy face:**

Autonomy face is threatened when providers tell patients what to do without giving the patients any choice (Littlejohn & Foss, 1992).

- **Competence face:**

Competence face is threatened when providers' responses make the patients look lacking in knowledge, understanding or intelligence (Littlejohn & Foss, 1992).

- **Fellowship face:**

Fellowship face is threatened when provider responses indicate a lack of care and concern for the patients (Littlejohn & Foss, 1992).

There will be two conditions of addressing relational resistance manipulated in the messages, namely:

- Low relational resistance:

Low relational resistance results from the provider respecting the patient's face, supporting the self-efficacy of the patient and responding to the patient in a caring and non-judgmental way.

- High relational resistance:

High relational resistance is derived from the provider failing to respect the patient's face, failing to support the self-efficacy of the patient and by judging the patient and telling the patient what to do.

The second independent message variable is the level at which providers' responses address the patient's issue resistance.

**Addressing issue resistance.** Issue resistance is defined as resistance in the form of substantive arguments advanced by the patient against voluntary health behavior change.

There are three levels of addressing the patient's issue resistance, namely:

- Ignoring issue resistance:

Providers fail to reflect the patient's core issues and concerns. Instead the provider discusses the issues that the provider believes to be significant (Villaume et al., 2009).

- Reflecting issue resistance:

Provider reflects/rephrases the patient's core issues and concerns but then digresses to discuss the issues that the provider considers to be important for the patient (Villaume et al., 2009).

- Addressing issue resistance:

Here the provider reflects the patient's core issues and concerns plus subsequently offering targeted information and insights that directly clarify/answer the patient's issues and provides the basis for a new conclusion in favor of health behavior change (Villaume et al., 2009).

### **Dependent Variables**

The dependent variables were measured using a 15 item scale that captured the participant's judgments on a scale of 1-7. The items on the scale were designed such that the scale captures the participant's judgments on five dependent variables. The five dependent variables selected for the study were the participant's evaluation of:

- The provider being accepting and respectful of the patient,
- The perceived likelihood of the patient seeing the physician again in the future,
- The likelihood of the patient considering a behavior change,
- The medical knowledge of the physician, and
- The helpfulness of the physician.

As this was the first study of its kind that examines whether the participant's judgments varied along the two dimensions of resistance, the following were the general considerations in the selection of the dependent variables.

Basically, the purpose of the study was to examine whether the participant's evaluation of providers varied along the two synergistic dimensions of addressing



relational and issue resistance. In other words, it is important to know whether participants are *naturally* sensitive to the two dimensions of addressing resistance. Thus, the judgments/dependent variables should not sensitize the participants to the providers' addressing of the two forms of resistance (whether or not they addressed relational and issue resistance in patients). Moreover, the selection of the dependent variables (judgments) also took into consideration that the judgments are in layman's language and not in the language of the experts.

In addition to the preceding general considerations in the selection of the dependent variables, the specific reasons for choosing each of the five dependent variables are discussed next.

The first dependent variable is the provider's being "accepting/respectful" of the patient. The patient's perception of his/her physician being accepting and non-judgmental is important for the success of MI counseling. In this study, one of the items of the scale constituting the dependent variable "accepting/respectful" was physician's non-judgmental behavior. MI is based on person-centered theory and the theory suggests that providers' non-judgmental attitude helps patients to engage in constructive behavior change. Patients may be more likely to consider a change when they perceive their physicians to be non-judgmental. Moreover, one of the elements of Rogers' essential and sufficient conditions for a therapeutic behavior change is "unconditional positive regard" and unconditional positive regard is about accepting patients as they are. Also, the variable accepting/respectful could be influenced especially by the way the providers' address the patient's relational resistance, i.e. whether providers save or lose face for the

patient. Hence, it was important to select the variable accepting/respectful as one of the dependent variables.

The second dependent variable is the patient's likelihood of seeing the physician again. The participant's judgments of the patient's likelihood of seeing the physician again is important because it tells the extent to which he/she liked the physician. If the participant perceives the physician as insensitive, it is less likely that he/she will want to see the physician again in the future. Also, if the participant perceives the physician lacking in expertise, he/she may not want to see the physician again. Generally, a patient's wish to see a physician again gives an indication of the quality of the previous interactions with the physician. Also, the likelihood of seeing the physician again could be influenced by the way provider addresses the patient's relational and issue resistance. In other words, the chances of seeing the physician increase when the physician respects the patient's face and also when the physician addresses the patient's issues. If the issues are ignored, it reduces the chances that the patient would want to see the physician again. Therefore, likelihood of seeing the physician again was selected as a dependent variable for the study.

The third dependent variable chosen for this study was the participant's perceived likelihood of engaging in behavior change. The perceived likelihood of engaging in a behavior change suggests that the provider's counseling had a positive impact on the participant's motivation to engage in change. Unless patients are motivated, they are unlikely to engage in behavior change. Moreover, the ultimate goal of MI is to enhance the patient's motivation by eliciting arguments for change from the patient. Thus, the evaluation of the patient's likelihood of engaging in health behavior change is crucial to

evaluate the perceived effectiveness of MI counseling along two dimensions. Moreover, patients are more likely to consider a behavior change when their face is respected. Literature (Apodaca & Longabaugh, 2009; Miller, 1996) suggests that resistance expressed during counseling is a strong predictor of a patient's behavior post counseling. Thus, if the provider is perceived as saving face for the patient (or not eliciting relational resistance), there is greater likelihood of behavior change. Also, MI theory suggests that patients consider arguments for change when they don't have to defend their status-quo. In other words, when patients become defensive of their current unhealthy behavior, there is less likelihood of their arguing *for* a constructive behavior change. Furthermore, the patient's likelihood of considering a behavior change is impacted by the way providers address the patient's issue resistance. In other words, when a patient's issues/concerns are addressed, he/she is more likely to reflect upon the pros and cons of a change compared to when his/her issues/concerns remain unresolved after counseling. There is a likelihood of a positive shift in the patient's decisional balance when the pros and cons of change are considered by the patient. Hence, the likelihood of the patient's engaging in a behavior change was selected as a dependent variable for this study.

The fourth dependent variable used in the study was the perceived medical knowledge of the physician. The participant's perception of medical knowledge of the physician is important because it affects the way the providers' recommendation/information is treated by the patient. If the participant's perceives the provider as knowledgeable, he/she is more likely to take the recommendation/information seriously and may consider incorporating the recommendation into his/her life style. In

other words, the perception of providers' medical knowledge impacts the patient's following the recommendations i.e., changing his/her life style.

The fifth dependent variable used in the study was the participant's perceived helpfulness of the physician. The perception of a physician's helpfulness is important from the stand point of the patient. If the meeting with the physician was perceived as not helpful, it gives an indication that the recommendation/information offered by the physician would not be considered sincerely and thereby would have little or no influence on the patient's engaging in a behavior change. On the other hand, a patient's perception that the physician was helpful suggests that the consultation was regarded as effective and that the patient is more likely to follow the physician's suggestions for a constructive behavior change. So, the perception of the helpfulness of a physician could have an effect on patient's decision about following the physician's suggestion for a life style change. Moreover, the perception of helpfulness could be affected by providers' addressing of issue resistance and also by the addressing of relational resistance. When a patient's issues get resolved, he/she is likely to perceive the provider as helpful. Also, addressing of relational resistance or respecting the patient's face could reduce the defensiveness and make the patient more receptive to the information offered by the physician.

### **Research Hypotheses**

This study proposes the following hypotheses that include two main effects for relational and issue resistance, and an interaction effect for relational by issue resistance. The next five hypotheses propose the main effects for relational resistance.

**Main effects for relational resistance.** The main effects for relational resistance are as follows:

H1a: Physicians in the low relational resistance condition will be judged as significantly more accepting/respectful than physicians in the high relational resistance condition.

H1b: Patients in the low relational resistance condition will be judged as significantly more likely to see their physician again compared to patients in the high relational resistance condition.

H1c: Patients in the low relational resistance condition will be judged as significantly more likely to consider a behavior change than patients in the high relational resistance condition.

H1d: Physicians in the low relational resistance condition will be judged as significantly more knowledgeable than physicians in the high relational resistance condition.

H1e: Physicians in the low relational resistance condition will be judged as significantly more helpful than physicians in the high relational resistance condition.

**Main effects for issue resistance.** The next five hypotheses propose the main effects of addressing issue resistance on the five dependent variables.

H2a: The participant's judgments about the physician as accepting/respectful will significantly decrease in the following order, i.e., addressing the issues > reflecting the issues > ignoring the issues.

H2b: The participant's judgments about the patient's perceived likelihood of seeing the physician again will significantly increase in the following order, i.e., addressing the issues > reflecting the issues > ignoring the issues.

H2c: The participant's judgments about the patient's likelihood of considering a behavior change will significantly increase in the following order, i.e., addressing the issues > reflecting the issues > ignoring the issues.

H2d: The participant's judgments about the physician as knowledgeable will significantly increase in the following order, i.e., addressing the issues > reflecting the issues > ignoring the issues.

H2e: The participant's judgments about the physician as helpful will significantly increase in the following order, i.e., addressing the issues > reflecting the issues > ignoring the issues.

The final five hypotheses propose a synergistic effect for the MI condition. The MI condition here refers to combination of the two conditions, i.e. low relational resistance and addressing of issue resistance. It is proposed that there will be an interaction effect between the low relational resistance condition and the addressing of issue resistance condition.

**Interaction effect for relational x issue resistance.** The hypotheses for the synergistic interaction effects are:

H3a: The participant's judgments about the physician as accepting/respectful will be significantly greater for MI condition than what would be predicted by the simple sum of the main effects for addressing of relational and issue resistance conditions.

H3b: The participant's judgments about the patient's perceived likelihood of seeing the physician again in the future will be significantly greater for MI condition than

what would be predicted by the simple sum of the main effects for addressing of relational and issue resistance conditions.

H3c: The participant's judgments about the patient's perceived likelihood of considering a behavior change will be significantly greater for MI condition than what would be predicted by the simple sum of the main effects for addressing of relational and issue resistance conditions.

H3d: The participant's judgments about the physician as knowledgeable will be significantly greater for MI condition than what would be predicted by the simple sum of the main effects for addressing of relational and issue resistance conditions.

H3e: The participant's judgments about the physician as helpful will be significantly greater for MI condition than what would be predicted by the simple sum of the main effects for addressing of relational and issue resistance conditions.

### **III. METHODOLOGY**

The objective of this study was to provide preliminary validation of the two dimensional theory of MI. This study proposed that people's attributions of the effectiveness of MI counseling varied along the two synergistic dimensions of addressing resistance in the patient, i.e., addressing relational resistance and addressing issue resistance. Message effects research method was used as a first step in validating this proposition. The message effects research method examines how variations in the structure and functioning of messages result in systematically different communication outcomes. The outcome measures are typically in the form of judgments or attributions. Message effects research is an appropriate first step in validating the two dimensional theory of MI since it could examine people's responses to different communication strategies used by providers and could help determine the dimensional structure of these responses.

The two independent variables used this study were addressing relational resistance and addressing issue resistance. Addressing relational resistance is about providers' respecting the patient's face. There were two levels of addressing relational resistance, i.e. high relational resistance and low relational resistance. In high relational resistance, there is no respect for the patient's face while in low relational resistance providers respect the patient's face. Addressing issue resistance is about engaging the patient's reasoning by responding to the patient's issues/concerns. There were three



levels of addressing issue resistance, i.e., ignoring the patient's issues, reflecting the patient's issues and addressing the patient's issues. Ignoring of issue resistance means that the provider ignores the patient's core issues/concerns. Reflecting issues refers to the provider reflecting or paraphrasing the patient's issues but the provider does not address the issues. Addressing issues indicates that the provider not only reflects the patient's issues but also responds to those issues with targeted information that directly answers the patient's issues.

Thus, there were two levels of the first independent variable and three levels of the second independent variable. This study proposed a main effect for addressing relational resistance and a main effect for addressing issue resistance and an interaction effect for relational x issue resistance. This proposition was tested using role-played videos that operationalized the combinations of the levels of the two independent variables. The role-played videos had a physician counseling a patient where the role of the physician was enacted by two MI experts while the role of the patient was enacted by five students from Auburn University.

### **Study Participants**

The participants were 21 students enrolled in a 'Public Communication' course (COMM 1000) in the College of Liberal Arts at Auburn University for summer 2011 and 141 students enrolled in the Patient-Centered Skills course (PYPC 5010) in the Harrison School of Pharmacy at Auburn University for fall semester 2011 who volunteered to participate or allow the use of their data for the study. The students from the COMM 1000 course were undergraduates ranging from freshmen to seniors and came from a variety of majors across the university. For their participation these students received

extra credit in the COMM 1000 course. The students from PYPC 5010 course were first semester Doctor of Pharmacy students who received extra credit for their participation in this study. The total number of participants recruited was 162.

### **Study Setting**

There were two different study settings. For the COMM 1000 course, the study was conducted in a public computer lab on campus that had been reserved exclusively for this study during several afternoons. The study setting for the PYPC 5010 course was their regular classroom.

### **Study Design**

This was an experimental study with a factorial repeated measures 2 x 3 design.

The two factors or independent message variables were:

- Relational resistance (with two levels).
- Issue resistance (with three levels).

The relational resistance had two levels, namely:

- High relational resistance.
- Low relational resistance.

The issue resistance had three levels, namely:

- Provider ignores the patient's issues.
- Provider reflects the patient's issues but does not address these issues.
- Provider both reflects and addresses the patient's issues.

The study design is shown in the following diagram with the cells numbered.

Table 1

*Study Design*

$\frac{\text{Relational Resistance}}{\downarrow \text{Issue Resistance}} \rightarrow$	High	Low
Ignores	1	2
Reflects	3	4
Reflects and Addresses	5	6

**Operational definitions of the cells.** Stimulus messages consisting of videotaped roleplayed counseling sessions of 75-150 seconds in length were created to operationalize all possible combinations of the levels of the independent variables (IVs). The operationalizations of the six cells of this 2 x 3 design were as follows:

- Cell 1 (high relational resistance and ignoring issue resistance):

The provider was neither sensitive to the need to respect the patient’s face nor did he reflect the patient’s issues. Instead the provider ignored or contradicted the patient’s issues and engaged in offering his own perspectives and recommendations to the patient. While this cell could have been operationalized by depicting the provider as rather antagonistic to the patient, the provider was portrayed as firmly fixed in his perspective as the expert, who decided what is best for the patient. The lack of respect for the patient’s face and the lack of engagement with the patient’s issues on the part of the provider indicated the position of provider as an expert. An example of counseling interaction representative of this cell would be:

- 1 Provider: Alright well I just took your blood pressure reading again. It's a 145/96 that is high blood pressure especially high for your age and consistent with the reading you got from the health fair, so you do have high blood pressure.
- 2 Patient: Woo ... I just can't believe that I have high pressure. You know I mean I am only 25 and it's rare for people my age to have high blood pressure. None of my friends have high blood pressure.
- 3 Provider: Well, you do-you do have high blood pressure. Ah you are going to need to change your diet, you need to exercise more. And you're also going to need to take your medication on a regular basis in order to reduce your blood pressure.
- 4 Patient: You have no idea how well I take care of my health though. I've got a major exercise routine. I jog every morning for about 20 minutes, then I go to the gym about four times a week and I feel great. I just don't really know how I could have a high blood pressure.
- 5 Provider: Well as I said before, you do have high blood pressure and I can't stress that enough. And you will need to start taking this medication everyday as prescribed if you want to reduce your blood pressure.

In the preceding example, the patient was finding it hard to accept that she has high blood pressure given that she is too young and also because she exercises very well. The provider failed to reflect the two reasons the patient expressed that

made her feel that she could not have high blood pressure. Also, the provider did not respect the patient's face. The provider told the patient what she should do to manage her illness taking an expert stance and threatened the patient's autonomy face.

Overall, the provider was fixed in his perspective as an expert and didn't give any consideration for the patient's issues.

- Cell 2 (low relational resistance and ignoring issue resistance):

The provider respects the patient's face by being empathic to the patient but does not reflect the patient's core issues. The provider is supportive of the patient and acknowledges the positive steps the patient may have taken to improve his/her health. The provider is non-judgmental and responds in a caring manner. However he/she overlooks the patient's reasoning for not engaging in behavior change. An example representative of this cell is:

1 Provider: I am concerned that you had to go to the emergency room last week. It seems that your smoking has increased the frequency and severity of your asthma attacks. How do you see your smoking affecting your asthma?

2 Patient: Well... I believe that I have asthma mainly because asthma runs in my family. My grandfather had asthma and my father has it. No surprise that I have it too.

4 Provider: I really would like to help you prevent your asthma from getting any worse. You are quite young right now and I am worried that your continuing to smoke could have irreversible effects on your lungs. How do you feel about that?

5 Patient: Well... I am taking my medicines everyday as prescribed and that ought to be enough.

6 Provider: It's really great that you are taking your medicines as prescribed. I really want to commend you for that. You seem really motivated to manage your illness.

In the preceding example, the provider expressed care and concern for the patient. Also, the provider supported the patient's self-efficacy for taking his/her medicines as prescribed but overlooked the patient's line of reasoning. The patient attributed the severity of his/her asthma to heredity factors. The provider did not reflect the patient's key issue that smoking is not responsible for the severity of his/her asthma as it was due to heredity and that taking medication will suffice to manage his/her asthma without having to make changes to smoking behavior. Thus, the provider took steps to respect the patient's face but ignored/overlooked the patient's core issue.

- Cell 3 (high relational resistance and reflecting issue resistance):

The provider reflects the patient's issues but does not accord any respect to the patient's reasoning. Instead the provider questions the patient's judgment, thereby losing face for the patient. While indicating that the patient is wrong in his/her reasoning, the provider never specifically shared information that would help the patient to reconsider his/her perspectives and reason through to make a better health decision. An example representative of this cell is:

1 Provider: So, as you can see, the results of your blood test the other day have confirmed that you have very high cholesterol.

- 2 Patient: Well, I have high cholesterol, but you don't worry about it until you are in your 50s or 60s.
- 3 Provider: Oh you think it's a problem only for those in their 50s or 60s? Well, high cholesterol is a big deal -- even at your age. You need to get your cholesterol much lower by making some changes in your diet and exercise habits.
- 4 Patient: Well, I thought only older people with sedentary life styles need to make those types of changes. I participate actively in sports and eat at the same fast food restaurants as my friends.
- 5 Provider: Okay fine, even though you're involved with sports, you're still eating at fast food restaurants. And if you eat at the same fast food restaurants as other people your age, you're probably eating greasy foods that are full of cholesterol.

In the preceding example, the provider did understand the patient's issue but instead of empathizing, he judged the patient's reasoning. The questioning intonation in utterance 3 says that the provider sees no validity in the patient's reasoning. The provider then discounts the patient's positive health behavior (i.e. active involvement in sports) and again judges the patient's eating habits in utterance 5. There was no effort made to address the patient's reasoning that blood pressure is a matter of concern even at a young age. Overall there was little respect for the patient's face and there was no addressing of the patient's core issue.

- Cell 4 (low relational resistance and reflecting issue resistance):

In this cell the provider reflects the patient's issues while also being respectful of the patient's face. The provider is empathic to the patient's issues, but after acknowledgement of the issue, the provider does not address those core issues.

An example representative of this cell is:

- 1 Patient: Well ... I just can't believe that I have high blood pressure. I mean I am just 25 and it's rare for people my age to have high blood pressure. None of my friends have high blood pressure.
- 2 Provider: Because blood pressure is extremely uncommon in people as young as you, it's just hard for you to believe that you have high blood pressure.
- 3 Patient: Yeah. And on top of that, you have no idea how well I take care of my health. I've got a major exercise routine. I jog about 20 minutes every morning and then go to the gym four times a week as well. I feel great and I just don't know how I could have a high blood pressure.
- 4 Provider: Your exercise routine will definitely be helpful in keeping you healthy. So because you feel great and maintain a healthy life style, you can't help but wonder how you could have high blood pressure.
- 5 Patient: Yeah. That's right.
- 6 Provider: May I share some information with you?
- 7 Patient: Okay



8 Provider: Right now you are doing great with your exercise. The other way to reduce your blood pressure is to take this medicine. This medicine will also reduce the risks of elevated blood pressure such as a heart attack or stroke. What are your thoughts about that?

Here the provider empathized with the patient's feeling and her reasoning in utterances 2 and 4. Also, the provider supported the self-efficacy of the patient's exercise habits in utterance 4. However, instead of going on to address the patient's denial of having high blood pressure, the provider changed the subject to discuss the importance of taking medications. While the patient may feel respected and understood, the patient may see no need to change her reasoning. In other words she may continue to remain in the denial mode and may not see the need to manage her disease.

- Cell 5 (high relational resistance and addressing issue resistance):

In this cell of the design, the provider actively addresses the patient's line of reasoning but does so in a very judgmental fashion. While the provider does share information with the patient that directly targets the heart of the patient's reasoning, the provider also loses face for the patient by invalidating the patient's thoughts and by telling the patient what to do. Thus the provider has violated the patient's competency and autonomy face. An example representative of this cell is:

1 Patient: I don't see much need to take my blood pressure medicine because I feel fine and I keep myself in good shape by exercising.

- 2 Provider: So tell me, are you under the impression that you don't need to take your blood pressure medicine because you feel fine and healthy?
- 3 Patient: Yeah and also because I exercise regularly.
- 4 Provider: Well, I'm not certain that you stand any chance of controlling your blood pressure by relying on just exercise, especially if you don't take your medicine. You need to realize that blood pressure may not show any symptoms that you can feel until it is too late. So although you feel healthy now, you need to take your medicine in order to reduce your risk of a stroke or heart attack.

In this example, although the provider accurately reflects and addresses the patient's issue, he/she does not respect the patient's face. The patient's competence face was threatened in utterance 2 by an interrogative style that implies judgment of the patient's reasoning and again in utterance 4 by the abrupt manner in which the provider corrects the patient's understanding of the asymptomatic nature of high blood pressure. In utterance 4 the patient's autonomy face is also threatened when the provider tells the patient what to do. The provider did not empathize with the patient's core issue but questioned the patient's reasoning. The substance of the information shared by the provider was accurate. However, the loss of face for the patient may have made it difficult for the patient to hear and assimilate that information.

- Cell 6 (low relational resistance and addressing issue resistance):

Here the provider fully addresses the patient's reasoning by providing targeted relevant information while at the same time preserving the patient's face by phrasing the information in a nonjudgmental fashion. Consequently, the patient may be less defensive and more open to the information. An example representative of this cell is:

- 1 Provider: So, as you can see, the results of your blood test the other day have confirmed that you have very high cholesterol. What's your understanding of what can happen if your cholesterol remains high?
- 2 Patient: Well, I have high cholesterol, but you don't worry about it until you are in your 50s or 60s.
- 3 Provider: So because you are young you feel that you are not at risk of suffering from high cholesterol. What would make you decide that cholesterol is something to worry about even at your age?
- 4 Patient: Well, I thought only older people with sedentary life styles need to make those types of changes. I participate actively in sports and eat at the same fast food restaurants as my friends.
- 5 Provider: Unfortunately anyone with high cholesterol is at risk of a heart attack or stroke. Your active engagement in physical activities like sports will significantly help in reducing your cholesterol. Tell me more about what types of fast food you eat.

- 6 Patient: Well, my favorite foods are hamburgers, french fries and barbeque. Just don't expect me to make any changes in my diet. I don't want to think about it right now.
- 7 Provider: So you don't want to worry about making any changes to your eating habits until you are older. May I share with you what concerns me?
- 8 Patient: Sure.
- 9 Provider: Your actively participating in sports is great for your cholesterol. I am concerned that if you continue to eat a lot of fast food, your cholesterol will remain high, and it will start depositing on the walls of the arteries in your heart and brain. And then you may find yourself at a high risk of a major stroke or heart attack in your 30s or 40s instead of in your 50s or 60s. What are your thoughts about making changes in what you eat now so that you can reduce your risk of a premature stroke or heart attack in your 30s or 40s?

In the preceding example, the provider has thoroughly respected the patient's face by empathizing with the patient's reasoning and supporting the patient's self-efficacy. The provider reflected the patient's core issues in an empathic manner in utterances 3, 5 and 7. Then the provider responded to that line of reasoning in a nonjudgmental way by providing targeted information that did not threaten the patient's competence face in utterance 5 and utterance 7. Finally the provider preserved autonomy face by inviting the patient to draw his/her own conclusion

without imposing the provider's conclusions on the patient. Thus the patient's issue was addressed without increasing any relational resistance.

The preceding section discussed the operational definitions of the six cells of the study design. Each of the six cells of the study design was represented by two messages. Thus, the messages were replicated in each cell, the reasons for which are explained next.

**Replication of messages.** In this 2 x 3 study design, messages (i.e., counseling sessions) were replicated in each cell in order to minimize the threat to validity due to case-category confounding. Case category confounding could happen when participants' attribute the properties of a case to that of the category (Jackson, 1992). In other words, when there is only one message in a cell, it is hard to make a distinction between the characteristics of the individual message from that of the category it represents. In order to have two messages representing each cell, counseling was delivered by two MI counselors with expertise in MI. The two MI experts were portrayed as physicians in the student medical center at Auburn University. Both the MI experts were males who were nearly 60 years of age. Also, both of them were professor emeritus at Auburn University's department of Pharmacy Care Systems. They have been teaching MI counseling for several years to healthcare professionals including nurse case managers, nurse practitioners, pharmacists and physicians.

**Description of the role played videos.** There were a total of four standardized patients, each with a unique health condition. Therefore the patients and health conditions were confounded in this design. The four different health conditions were A) drinking, B) smoking, C) high blood pressure, and D) high cholesterol. These four health conditions were included in this study since the participants in this study were students who were

more likely to identify with these types of conditions. Smoking and drinking are considerably common in this age group while blood pressure and cholesterol are disease states about which the students are more likely to know of someone in their family or friends managing these disease states. Also, counseling is especially needed for diseases like blood pressure and cholesterol as they are silent conditions and patients do not feel motivated to manage these conditions. Moreover, these diseases need to be controlled through a variety of means such as through medicines, exercise and diet management. So the participants are more likely to identify being counseled for these health conditions. The more the participants identify with these scenarios, the greater will be the validity of their evaluations of providers' counseling. Thus, these four scenarios are likely to hold the participants' attention to the stimulus messages and thereby improve the validity of the study. Smoking and drinking are addictive behaviors while high blood pressure and high cholesterol are disease states usually resulting from unhealthy life style habits. Hence each provider was assigned either a smoking or drinking scenario to ensure that each provider offered counseling for an addictive behavior. Similarly, each provider was assigned either high blood pressure or high cholesterol to ensure that both providers offered counseling for a disease condition.

**Balancing the occurrence of videos in the cells of the study design.** As this study used a 2 x 3 factorial design with replication of messages in each cell, there were a total of 12 stimulus messages in the form of videotaped counseling sessions. With each of the two providers counseling two patients with different health conditions, each patient/health condition occurred in only three of the six cells of the design. In order to balance the occurrence of the health conditions across the two providers and the six cells,

the following assignment of patient/health condition to provider was followed. Provider 1 counseled an addictive behavior in cells 1, 4, and 5 and a disease condition in cells 2, 3 and 6. Provider 2 counseled an addictive behavior in cells 2, 3 and 6, and a disease condition in cells 1, 4 and 5. This assignment schedule ensured that full variation occurred for each patient/health condition across both dimensions of the design.

**Validation of the operationalization of the videos representing the cells.** The operationalization of the six cells of the study design was validated for accuracy while also ensuring that the operationalization discriminated between the cells of the study design. In other words, the messages were made representative of the cells and additionally each message representing the cells were clearly delineated from the messages representing other cells of the design. A panel of three MI experts judged the validity of the operationalization of the cells. The 12 videos operationalizing the six cells of the study design were shown to the panel of MI experts. The MI experts watched the 12 videos individually and classified them in terms of the cells they represent based on the instructional manual provided to them that operationalizes the cells. For example, if a video showed a provider responding to his patient by supporting self-efficacy, being non-judgmental and respecting the patient's face while ignoring the patient's reasoning, then the experts would classify this video as an operationalization of the second cell of the study design (low relational resistance and ignoring the patient's issues). The criterion for validation of the videos was that there should be complete agreement between at least two of the three judges in correctly identifying the cells of the study design that were being operationalized by the stimulus videos. Otherwise, the videotaped role play/videos would have needed to be redone until sufficient agreement was achieved. In this study,

two of the three MI experts were in complete agreement about the operationalization of the videos and consensus was reached upon discussion with the third MI expert as well.

### **Data Collection Method**

The data collection for students enrolled in COMM 1000 course took place in a public computer lab in the summer of 2011. A total of 21 students enrolled in COMM 1000 course participated in this study and the data collection procedure for this group of students is described next.

The study participants reported to the computer lab during the summer of 2011, where each participant was assigned a computer. The investigator informed these participants of their role in the study in accordance with IRB policies. The participants then randomly selected a unique ID number that was entered on the computer to initiate the data collection program. The authorware program used in this study was programmed such that the participants began with rating three successive practice sessions and these ratings were not included for the study. As mentioned earlier, these practice rating sessions represented cells 1, 4 and 6 and were intended to minimize ceiling effects by familiarizing the participants with the range of variability in providers' counseling performances. Once the participants were finished rating all 12 of the actual stimulus counseling sessions, they were instructed to raise their hands. An extra credit form was filled out by the participants who completed this study and these forms were scanned and emailed to the course instructor who offered extra credit for the participating students. At the end of the data collection session, the anonymous data were collected from all the computers and saved on a hard drive.



In addition to the students enrolled in COMM 1000 course, data were collected from the students registered for the PYPC 5010 course as well. The data collection for this group of students took place in the Fall of 2011 on their first or second day as first year students in pharmacy. The pharmacy school has two campuses; one in Auburn and the other in Mobile. The data collection took place on the first class day on the Auburn campus and the second class day on the Mobile campus. The reason for scheduling the data collection on the first and the second class day was to reduce the impact of any course work on the students' responses to the stimulus videos. This research study was incorporated into the course as one of the active learning activities by the PYPC 5010 course director in order to increase students' participation in the study. The students had the choice whether or not they wished to contribute the data generated from the active learning activity for this research study. A total of 141 students from both Auburn and Mobile campuses offered their data for this research. The data collection process will be described next.

The data collection was scheduled for four hours on the Auburn campus and students were asked to come to the tiered auditorium, which is their regular classroom for the PYPC 5010 course to participate in this study. Three graduate students offered to help the investigator of this study to upload the authorware program (used for this study) onto the students' laptops. The students were asked to enter their banner id number to initiate the program. Once the students had completed the study, they were then instructed to upload their data onto the PYPC 5010 course website on blackboard. The data uploaded by the students were then retrieved from the course website and deidentified by a faculty member.

The deidentified data from both the courses (COMM 1000 and PYPC 5010) were then combined together. Thus, a total of 162 participants' data were analyzed.

**Controlling for order effects/carry over effects.** During data collection, the 12 videotaped counseling sessions were played back on the computer in a random order in order to control for any order effects. After each counseling session was played, participants entered their evaluations of the provider based on the dependent measures (discussed under the dependent variable measures) by clicking on a rating scale displayed on the computer monitor. The program will not move on to the next screen until the participants have entered their reactions on the computer. Also, the 15 items/questions were generated in a random order for each individual participant after each video was presented. The generation of the random order of questions for participants allowed for controlling any order effects.

**Controlling for ceiling effects.** There was a possibility of participants' rating the initial counseling interactions using extreme values i.e. rating the videos extremely high (or low) for the items on the dependent measures scale. Participants may not have a reference or standard to make relative judgments about the nature of the initial counseling interactions. Therefore, three practice sessions were presented to the participants to orient them with a range of variation in the nature of counseling interactions in the videos before they rated the actual stimulus videos. These practice sessions or videos were similar to the videos that were analyzed in this study. In the three roleplayed practice sessions, counseling was offered for a patient with bulimia. The one distinction in the practice sessions was that participants rated the practice sessions on fewer numbers of items on the dependent measures scale instead of 15 items used for actual counseling

sessions that were analyzed in the study. The reason for less number of items used for practice sessions was to reduce the time spent on rating the practice videos. As the time spent by participants in the study increases, there is threat to validity due to fatigue, which was minimized by reducing the items used for rating the practice sessions. These practice sessions represented cells 1, 4 and 6, which would have helped them see a range of variation in the videos. These practice sessions were not randomized in the order in which they were presented; instead cell 1 was followed by cell 4, which was then followed by cell 6. The range of variation in the level of addressing relational and issue resistance could have aided them in making better relative judgments or evaluations of the counseling interactions.

### **Dependent Variable Measures**

A series of 15 items were asked to capture participants' perceptions of the counseling interaction. Please note that in the following list of 15 items, selected items are grouped together separated by a space from the other groups of items. The items are grouped together to indicate that they assess a single dependent variable. For example, items 1, 2 and 3 in the following list assess participants' likelihood of engaging in behavior change while items 4 and 5 evaluate participants' likelihood of seeing the physician again. All the items were assessed using a seven point scale and the 15 items are as follows:

1. If I were this patient, it is \_\_\_\_\_ that I would try to change my behavior.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

2. If I were this patient, it is \_\_\_\_\_ that I would think about changing my behavior.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

3. If I were this patient, it is \_\_\_\_\_ that I would resist changing my behavior.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
4. If I were this patient, it is \_\_\_\_\_ that I would want to see this physician again in the future.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
5. If I were this patient, it is \_\_\_\_\_ that I would avoid seeing this physician again in the future.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
6. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.  
 very helpful 1-----2-----3-----4-----5-----6-----7 not at all helpful
7. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.  
 a great deal of assistance to me 1-----2-----3-----4-----5-----6-----7 no assistance to me
8. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very distant 1-----2-----3-----4-----5-----6-----7 very approachable
9. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very caring 1-----2-----3-----4-----5-----6-----7 not at all caring
10. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very trustworthy 1-----2-----3-----4-----5-----6-----7 not at all trustworthy

11. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very respectful 1-----2-----3-----4-----5-----6-----7 very disrespectful
12. If I were this patient, I would consider this physician to be \_\_\_\_\_ of who I am.  
 very accepting 1-----2-----3-----4-----5-----6-----7 not at all accepting
13. If I were this patient, I would consider this physician \_\_\_\_\_.  
 very judgmental 1-----2-----3-----4-----5-----6-----7 very nonjudgmental
14. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very knowledgeable 1-----2-----3-----4-----5-----6-----7 not at all  
 knowledgeable
15. If I were this patient, I would have \_\_\_\_\_ in the medical expertise of this physician.  
 very high trust 1-----2-----3-----4-----5-----6-----7 no trust at all

These preceding items were displayed on the computer screen one question at a time in a random order. There were hotspots surrounding each number on the seven point scale. When the cursor was over each number, the cursor changed to indicate the presence of a hotspot. Once the student clicked on a number, the computer automatically recorded the response number in a dataset for that participant number. The dataset was automatically saved after the set of ratings was completed for each videotaped interaction.

### **Data Analysis**

The data were analyzed in a repeated measures MANOVA with a 2x3x2 design. The first two variables were the fixed effects for the two levels of relational resistance and three levels of issue resistance while the third variable was a random effect that

represents the replication of the providers within the six cells of the study design. Both providers offered counseling in each of the cells of the study design. The treatment of provider as a random effect allows for partialling out any systematic variance attributable to idiosyncratic characteristics of the providers.

## IV. RESULTS

This chapter reports the results of a 2x3x2 repeated measures Manova that tests the three main hypotheses of the study. The first two variables represent the fixed effects of relational resistance and issue resistance. The third variable is a random effect representing the replication of the healthcare providers within the main cells of the design. The reliability of the dependent measures will be reported first, followed by the results of the multivariate tests and finally the results of the univariate tests and post hoc multiple comparison tests.

### **Reliability Estimates**

After viewing each stimulus video, the participants in this study reported their judgments about the video using a 15 item scale with five subscales representing five dependent variables. The questions captured the participants' reactions on a scale of 1-7. Each question started with the wording "if I were this patient". For example, "If I were this patient, I would consider this physician to be \_\_\_ (caring/uncaring)". In other words, the participants were not asked to speculate about the responses of the patient in the stimulus videos. Instead, the participants were responding to the items based on their own reactions to the stimulus videos as though they were the patient. Some of the questions were negatively worded in order to minimize participants' entering their responses randomly without reading the question. For example, a question was negatively worded as "If I were this patient, it is \_\_\_ that I would resist changing my behavior (very likely/very unlikely). Consequently, the valences of the negatively worded items were

reversed prior to any statistical analysis. Furthermore, the questions were displayed in a random order to the participants after each video. The generation of random order of questions by the authorware program was intended to control for any order effects. As mentioned earlier, this study used five subscales representing five dependent variables to capture participants' reactions to the stimulus videos. The five dependent variables were:

1. The physician's being accepting/respectful of the patient
2. The patient's likelihood of seeing the physician again
3. The patient's likelihood of a behavior change
4. The medical knowledge of the physician
5. The helpfulness of the physician.

The reliability coefficients for the items constituting the preceding five dependent variables will be reported next.

**The physician's being accepting/respectful of the patient.** This subscale indicates the participants' judgments about the physician as caring and nonjudgmental. A high score on accepting/respectful indicates that the physician was viewed by the participants as very accepting and respectful of the patient. This dependent variable consisted of five items, namely:

1. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
very caring 1-----2-----3-----4-----5-----6-----7 not at all caring
2. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
very trustworthy 1-----2-----3-----4-----5-----6-----7 not at all trustworthy
3. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
very respectful 1-----2-----3-----4-----5-----6-----7 very disrespectful



4. If I were this patient, I would consider this physician to be \_\_\_\_\_ of who I am.  
very accepting 1-----2-----3-----4-----5-----6-----7 not at all accepting

5. If I were this patient, I would consider this physician \_\_\_\_\_.  
very judgmental 1-----2-----3-----4-----5-----6-----7 very nonjudgmental

The scores on these five preceding items were averaged to get a mean score on accepting/respectful. Cronbach's  $\alpha$  for these five items were computed for each of the videos. As there were 12 videos, a total of 12 Cronbach's  $\alpha$ s were computed for this dependent variable. One of the items constituting the dependent variable

Accepting/Respectful had to be deleted. The deleted item was:

If I were this patient, I would consider this physician to be \_\_\_\_\_.

very distant 1-----2-----3-----4-----5-----6-----7 very approachable

Item 8 evaluated the participants' judgment of the providers as approachable/distant and it was deleted as it resulted in an increase in Cronbach's  $\alpha$ . The Cronbach's  $\alpha$  for the five items retained in the scale ranged from .82 to .92 for the 12 videos to obtain an average reliability of .88.

**The patient's likelihood of seeing the physician again.** This subscale indicates participants' perceived likelihood of seeing the physician again if they were the patient.

The items constituting this dependent variable were:

1. If I were this patient, it is \_\_\_\_\_ that I would want to see this physician again in the future.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

2. If I were this patient, it is \_\_\_\_\_ that I would avoid seeing this physician again in the future.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

The scores on the previous two items were averaged to get a mean score on see again for each video. Cronbach's  $\alpha$  for the two items were computed for all 12 videos and they ranged from .66 to .84 with an average of .80.

**The patient's likelihood of a behavior change.** The patient's likelihood of considering a behavior change subscale represents the study participants' judgments about their likelihood of behavior change. A high score signifies participants' were very likely to consider a behavior change. It consisted of three items, namely:

1. If I were this patient, it is \_\_\_\_\_ that I would try to change my behavior.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

2. If I were this patient, it is \_\_\_\_\_ that I would think about changing my behavior.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

3. If I were this patient, it is \_\_\_\_\_ that I would resist changing my behavior.

very likely 1-----2-----3-----4-----5-----6-----7 very unlikely

The scores on these three items were averaged to get a mean score for behavior change after each video. Cronbach's  $\alpha$  for the three items on behavior change ranged from .76 to .91 for the 12 videos with an average Cronbach's  $\alpha$  of .87.

**The medical knowledge of the physician.** This subscale signifies the study participants' judgments about the medical expertise of the physician. A high score indicates that the participants perceived the physician as very knowledgeable. The items constituting this dependent variable were:

1. If I were this patient, I would consider this physician to be \_\_\_\_\_.

very 1-----2-----3-----4-----5-----6-----7 not at all

knowledgeable

knowledgeable

2. If I were this patient, I would have \_\_\_\_\_ in the medical expertise of this physician.

very high trust 1-----2-----3-----4-----5-----6-----7 no trust at all

The scores on these two items were averaged to get a mean score on medical knowledge for each video. The reliability coefficients for medical knowledge for the 12 videos ranged from .85 to .93 with an average of .89.

**The helpfulness of the physician.** This subscale indicates the study participants' judgments about the helpfulness of the physician. A high score signifies participants perceived the physician as very helpful. It was comprised of two items:

1. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.

very helpful 1-----2-----3-----4-----5-----6-----7 not at all helpful

2. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.

a great deal of 1-----2-----3-----4-----5-----6-----7 no

assistance to me

assistance to me

The scores on these items were averaged to get a mean score on helpfulness for each video. Cronbach's  $\alpha$  for the two items for the twelve videos ranged from .83 to .94 with an average of .90.

## Reliability Estimates

Table 2

*Cronbach's  $\alpha$  for the Five Dependent Variables*

Prov <sup>a</sup>	Relational resistance	Issue resistance	Accepting/ Respectful	See again	Behavior change	Medical knowledge	Helpfulness
1	High	Ignores	0.89	0.66	0.80	0.85	0.89
2	High	Ignores	0.91	0.83	0.86	0.87	0.92
1	Low	Reflects	0.84	0.85	0.90	0.89	0.94
2	Low	Reflects	0.88	0.86	0.90	0.93	0.93
1	High	RA	0.91	0.85	0.84	0.90	0.91
2	High	RA	0.89	0.83	0.88	0.87	0.91
1	Low	Ignores	0.82	0.70	0.91	0.85	0.83
2	Low	Ignores	0.82	0.87	0.89	0.89	0.92
1	High	Reflects	0.92	0.84	0.91	0.91	0.92
2	High	Reflects	0.90	0.82	0.86	0.91	0.90
1	Low	RA	0.86	0.72	0.76	0.92	0.87
2	Low	RA	0.89	0.80	0.88	0.89	0.85
Average			0.88	0.80	0.87	0.89	0.90

*Note.* Prov<sup>a</sup> = Provider; RA = Reflects and addresses.

## Multivariate Tests

A 2x3x2 repeated measures MANOVA was performed in SPSS using Proc GLM with a statistical model specifying three fixed effects, namely a main effect for relational resistance, a main effect for issue resistance, and an interaction effect for relational resistance by issue resistance, plus a random effect for the replication of the provider across all six cells of the fixed effects. The hypotheses were tested by the three fixed

effects. The replication of providers was specified as random effect to control for individual differences between the two physicians portrayed in the stimulus videos. There were no higher order interactions specified in the statistical model for the interaction between the providers and the fixed effects because the random effect for the provider was of no theoretical interest in this study.

The 2x3x2 MANOVA revealed a significant multivariate main effect for relational resistance [*Wilks' λ* = .19,  $F(5, 157) = 130.08$ ,  $p \leq .001$ , partial eta squared = .81] and issue resistance [*Wilks' λ* = .43,  $F(10, 636) = 32.48$ ,  $p \leq .001$ , partial eta squared = .34]. Furthermore, there was a significant interaction effect for relational by issue resistance [*Wilks' λ* = .55,  $F(10, 636) = 21.67$ ,  $p \leq .001$ , partial eta squared = .25]. There was also a significant effect for random main effect of the providers [*Wilks' λ* = .82,  $F(5, 157) = 6.67$ ,  $p \leq .001$ , partial eta squared = .18].

### **Univariate Tests**

Given the significance of the multivariate tests, univariate repeated measures follow up tests were conducted for the main and interaction effects of relational and issue resistance. These tests were performed in SPSS using Proc Mixed with the same statistical model as specified for the MANOVA reported earlier. The reason for switching to the Mixed Procedure was that univariate tests in this procedure compute the values of the random variable appropriately whereas the univariate tests in the GLM Procedure could not handle the values of the random variable appropriately.

The assumption of sphericity is one of the assumptions for repeated measures MANOVA. The assumption of sphericity signifies the need for equality of variance across the levels of the independent variables. The assumption of sphericity was tested in

this analysis using Mauchly's test and a  $p \leq .05$  was obtained indicating a significant difference in variance between the levels of the independent variables for the dependent variables. This violation of the assumption of sphericity increases the risk of Type I error and to reduce the chances of Type I error, the Greenhouse Geisser correction was used for all effects. The Greenhouse-Geisser correction alters the degrees of freedom for the  $F$  ratio, so that the critical value for the rejection of the null hypothesis is increased, which in turn decreases the chances of a type I error.

The results of the univariate repeated measures analyses of variance for the five dependent variables are reported next. The estimated marginal means have been reported in order to control for the differences between the two providers in the random effect. All multiple comparison tests among cells were based on the mean and standard deviations of the estimated marginal means. The multiple comparison tests for differences between the three levels of issue resistance were computed using the Bonferroni option for pairwise comparisons in the Mixed Procedure in SPSS. Multiple comparison tests among individual cells of the interaction effect were hand computed using 99.2% confidence intervals to control for experimentwise error rate. For these multiple comparisons, the  $\alpha$  value of .05 was divided by the number of cells (6) instead of by the number of pairwise tests (15) in order to avoid making the tests overly conservative. Cohen's  $d$  value was used as an estimate of the effect sizes for all pairwise differences. Cohen's  $d$  indicates the standardized difference in means between the cells of the study design and can be translated into "the average percentile standing of the average treated participant relative to the average untreated participant" (Becker, 2000, p.3). Cohen's  $d$  can also be regarded as the percentage of non-overlap of the scores of the participants in a cell with the scores

of the participants in the comparison cell. For pairwise comparisons, the difference between the means of two cells being compared was divided by the pooled standard deviation of the two cells to compute Cohen's  $d$  (Becker, 2000). Also, Cohen's  $d$  value was used as an estimate of the effect sizes for the judgments that revealed significant interaction effects. The interpretation of Cohen's  $d$  is provided in the Table 3. According to Cohen (Becker, 2000) an effect size of less than .2 is considered as a small effect, while an effect size of .5 is a medium effect and an effect size of .8 is considered a large effect.

Table 3

*The interpretation of Cohen's d*

Cohen's Standard	Value of $d$	Percentile Standing	Percent of Nonoverlap
	2.0	97.7	81.1%
	1.9	97.1	79.4%
	1.8	96.4	77.4%
	1.7	95.5	75.4%
	1.6	94.5	73.1%
	1.5	93.3	70.7%
	1.4	91.9	68.1%
	1.3	90	65.3%
	1.2	88	62.2%
	1.1	86	58.9%
	1.0	84	55.4%
	.9	82	51.6%
Large	.8	79	47.4%
	.7	76	43.0%
	.6	73	38.2%
Medium	.5	69	33.0%
	.4	66	27.4%
	.3	62	21.3%
Small	.2	58	14.7%
	.1	54	7.7%
	0	50	0%

The three judgments i.e., the patient's likelihood of behavior change, the participants' perceived medical knowledge of the physician and the participants' perceived helpfulness of the physician revealed a significant interaction effect. The effect



size (Cohen's *d*) computed for the differences between the MI condition and each of the other five conditions included all three effects, i.e., the main effect for relational resistance, the main effect for issue resistance and the interaction effect for relational by issue resistance. Therefore, supplemental computations were conducted to estimate how much of the effect sizes for the MI condition for these three judgments were attributable to synergy alone. The following method was used to estimate the effect size exclusively due to synergy after partialling out the main effect for addressing relational resistance and addressing issue resistance.

First, it was necessary to find the mean and the standard error for the MI cell by assuming that there was no synergistic interaction effect in the MI cell. In other words, the mean and the standard error for the MI condition was estimated based on the assumption that there were only two significant main effects, i.e., one for addressing relational resistance and the other for addressing issue resistance in the patient. This hypothetical MI condition will be referred as 'MI condition with two significant main effects'. The estimated mean for the MI condition with two significant main effects was obtained by adding the estimated main effect for addressing relational resistance to the cell mean for the high relational resistance with addressing the issue condition. The reason for adding the estimated main effect for addressing relational resistance to the cell mean for high relational resistance with addressing the issue resistance condition is that the cell mean for high relational resistance with addressing issues condition represents the effect of addressing issues but does not include the main effect for addressing the relational resistance.

The main effect for addressing relational resistance was obtained by averaging the differences between two pairs of means, i.e., the first pair constituted the cell for low relational resistance with ignoring the issue condition and the cell for high relational resistance with ignoring the issue condition, and the second pair constituted the cell for low relational resistance with reflecting the issue and the cell for high relational resistance with reflecting the issue condition. Thus, the difference in the cell means for the low relational resistance with ignoring the patient's issues condition was subtracted from the cell mean for the high relational resistance with ignoring issues condition to obtain a value (V1). Similarly, the cell mean for the low relational resistance with reflecting issues condition was subtracted from the cell mean for the high relational resistance with reflecting issues condition to obtain a value (V2). These mean differences denoted by the values V1 and V2 are rough estimates of the difference between the low and the high levels of addressing the relational resistance. Next these two values (V1 and V2) were averaged to get a value (V), which is a more precise estimate of the main effect for addressing the relational resistance.

As mentioned earlier, the estimated mean for the MI condition with two significant main effects was obtained by adding the estimated main effect for addressing the relational resistance to the cell mean for the high relational resistance with addressing issues condition. Therefore the value (V) was added to the cell mean for the high relational resistance with addressing issues condition to obtain the estimated cell mean for the MI condition with two significant main effects. Next the standard error of the mean was estimated for the MI condition with no interaction effect by averaging the standard errors of the following four cells/conditions:

- The cell for the low relational resistance with ignoring issues,
- The cell for the high relational resistance ignoring issues,
- The cell for the low relational resistance reflecting issues, and
- The cell for the high relational resistance with reflecting issues.

Thus, the mean and the standard error of the mean were estimated for the MI condition with two significant main effects and no interaction effect. The next step was to estimate the effect size (Cohen's  $d$ ) for the difference between the actual MI condition (with an interaction effect) and the estimated MI condition (with two significant main effects and no interaction effect). The value of Cohen's  $d$  was obtained by dividing the difference in the two means by the pooled standard deviation for the two conditions. This particular value of Cohen's  $d$  represents the effect size attributable solely to the synergistic interaction effect for the MI condition.

Also, the effect size (Cohen's  $d$ ) for the main effect for addressing relational resistance was estimated by dividing the difference in the means of the estimated MI condition (with two significant main effects) and of the condition of high relational resistance with addressing issues by the pooled standard deviation of the two conditions. Similarly, the effect size for the main effect for addressing the issue resistance was estimated by dividing the differences in the means of two conditions, i.e., the estimated MI condition (with two significant main effects and no interaction effect) and the low relational resistance with reflecting issues condition by the pooled standard deviation of the two conditions.

Thus, the preceding procedure was used to estimate the effect size attributable to synergy of the interaction effect alone and also the effect sizes attributable to the main

effects for addressing the relational and the issue resistance in the patient. These effect sizes are reported for each of the three dependent variables with a significant interaction effect..

**The physician's being accepting/respectful of the patient.** The main effect for relational resistance was significant [ $F(1, 142.00) = 532.50, p \leq .001$ ] for the physician's being accepting/respectful of the patient. The physician in the low relational resistance condition ( $M = 5.71, SE = .05$ ) was perceived as significantly more accepting/respectful of the patient than the physician in the high relational resistance condition ( $M = 3.72, SE = .08; d = 2.34$ ).

The main effect for issue resistance was significant [ $F(2, 46.81) = 43.03, p \leq .001$ ] for the physician's being accepting/respectful of the patient. The physician who addressed the patient's issues ( $M = 5.03, SE = .06$ ) was perceived to be significantly more accepting/respectful of the patient than both the physician who only reflected the patient's issues ( $M = 4.62, SE = .06; d = .54$ ) and the physician who ignored the patient's issues ( $M = 4.50, SE = .06; d = .69$ ). However, there was no significant difference between the physician who reflected the patient's issues and the physician who ignored the patient's issues.

The interaction effect for relational resistance by issue resistance was not significant [ $F(2, 161.00) = 2.02, p \leq .13$ ] for the physician's being accepting/respectful of the patient.

Table 4

*Main Effects and Interaction Effect for the Physician's Being Accepting/Respectful of the Patient*

Relational resistance	Mean	Standard error
High	3.72 <sup>a</sup>	.08
Low	5.71 <sup>a</sup>	.05

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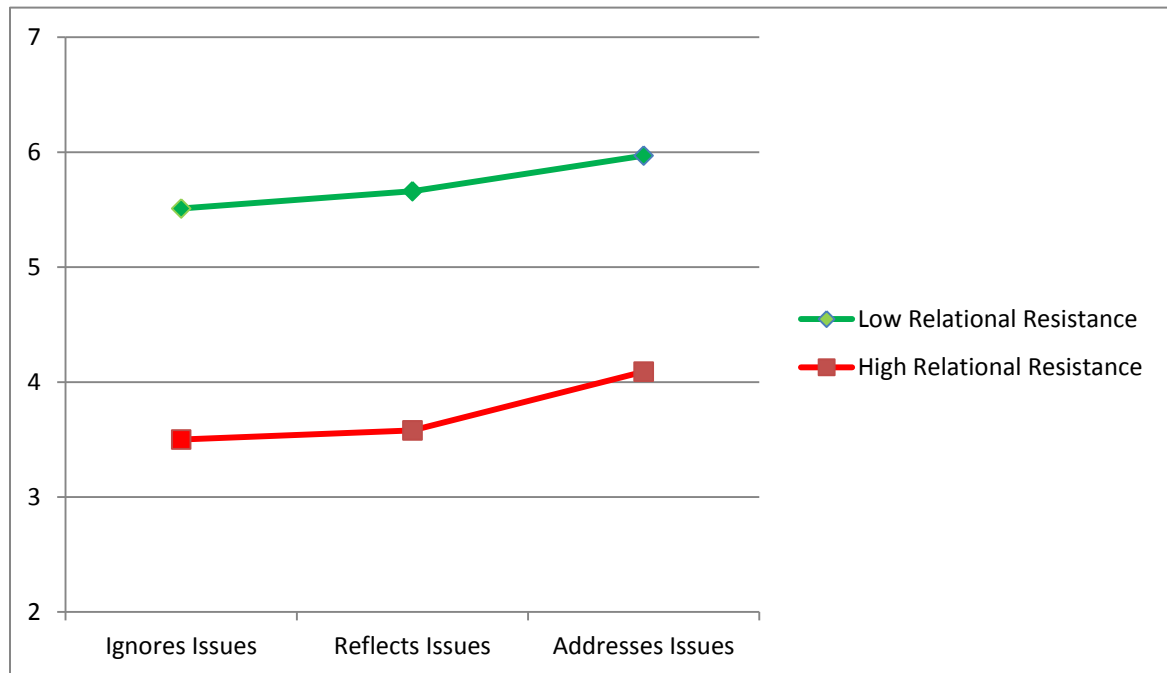
Issue resistance	Mean	Standard error
Ignores	4.50 <sup>a</sup>	.06
Reflects	4.62 <sup>b</sup>	.06
Addresses	5.03 <sup>ab</sup>	.06

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Issue resistance	Relational resistance	
	High	Low
Ignores	3.50 (.09)	5.51 (.07)
Reflects	3.58 (.09)	5.66 (.06)
Addresses	4.09 (.09)	5.97 (.06)

The cells sharing the same superscript are significantly different from each other at  $p < .05$ .

Figure 5. Cell means for physician's being accepting/respectful of the patient.



**The patient's likelihood of seeing the physician again.** The main effect for relational resistance was significant [ $F(1, 161.00) = 339.85, p \leq .001$ ] for the patient's likelihood of seeing the physician again. The participants judged themselves as more likely to see the physician again in the low relational resistance condition ( $M = 5.35, SE = .12$ ) than in the high relational resistance condition ( $M = 3.53, SE = .13; d = 1.14$ ).

The main effect for issue resistance was significant [ $F(2, 161.25) = 54.11, p \leq .001$ ] for the patient's likelihood of seeing the physician again. The patient's likelihood of seeing the physician again was highest for addressing issues ( $M = 4.94, SE = .12$ ), followed by reflecting issues ( $M = 4.33, SE = .12$ ) and then by ignoring the patient's issues ( $M = 4.05, SE = .13$ ). All differences between the three levels of addressing issue resistance were significant. The participants were significantly more likely to see the physician again who addressed the patient's issues than the physician who just reflected

the patient's issues ( $d = .40$ ) and the physician who ignored the patient's issues ( $d = .56$ ). Also, the participants were significantly more likely to see again the physician who reflected the patient's issues than the physician who ignored the patient's issues ( $d = .18$ ).

The interaction effect for relational by issue resistance was not significant [ $F(2, 161.01) = 1.94, p = .15$ ] for see again, as is evident by the parallel lines observed in figure 2.

Table 5

*Main Effects and Interaction Effect for the Patient's Likelihood of Seeing the Physician Again*

Relational resistance	Mean	Standard error
High	3.53 <sup>a</sup>	.13
Low	5.35 <sup>a</sup>	.12

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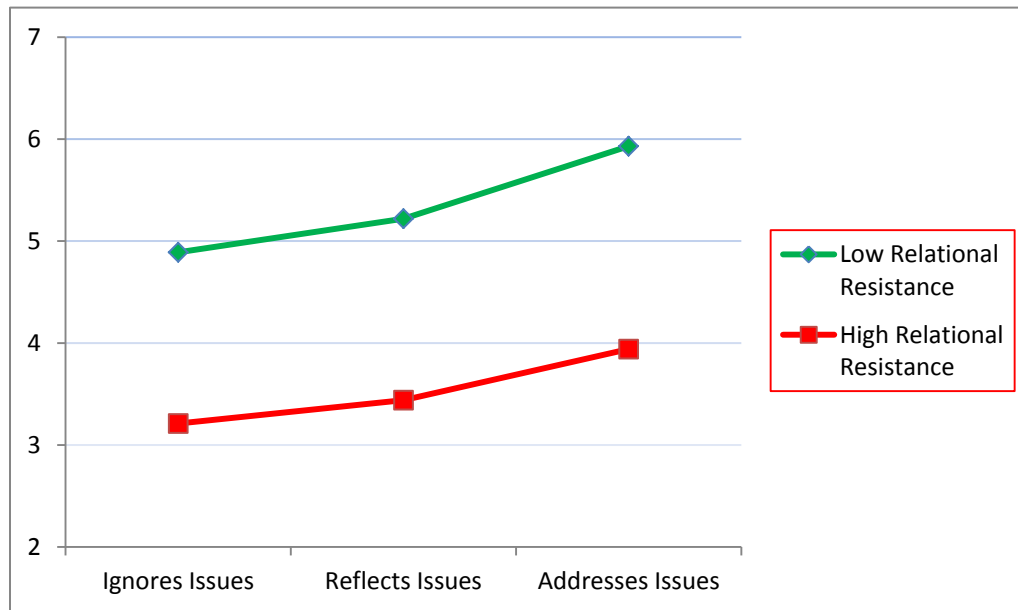
Issue resistance	Mean	Standard error
Ignores	4.05 <sup>ac</sup>	.13
Reflects	4.33 <sup>bc</sup>	.12
Addresses	4.94 <sup>ab</sup>	.12

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Issue resistance	Relational resistance	
	High	Low
Ignores	3.21 (.14)	4.89 (.15)
Reflects	3.44 (.14)	5.22 (.13)
Addresses	3.94 (.14)	5.93 (.12)

The cells sharing the same superscript are significantly different from each other at  $p < .05$ .

Figure 6. Cell means for the patient's likelihood of seeing the physician again.



**The patient's likelihood of a behavior change.** The main effect for relational resistance was significant [ $F(1, 161.02) = 77.54, p \leq .001$ ] for the patient's likelihood of behavior change. The participants perceived the patient in the low relational resistance condition ( $M = 4.40, SE = .10$ ) as more likely to consider a behavior change than the patient in the high relational resistance condition ( $M = 3.58, SE = .11; d = .61$ ).

The main effect for issue resistance was significant [ $F(2, 161.34) = 102.80, p \leq .001$ ] for the patient's likelihood of behavior change. The participants' judgments about the patient's likelihood of behavior change was highest for addressing issues ( $M = 4.73, SE = .09$ ), followed by reflecting issues ( $M = 3.75, SE = .11$ ) and then by ignoring the patient's issues ( $M = 3.48, SE = .11$ ). All differences between the three levels of addressing the patient's issue resistance were significant. The participants were significantly more likely to consider a behavior change when their issues were addressed



than when their issues were just reflected ( $d = .77$ ) and when their issues were ignored ( $d = .98$ ) by the physician. Also, the participants were significantly more likely to consider a behavior change when their issues were reflected than when their issues were ignored by the physician ( $d = .19$ ).

The interaction effect for relational resistance by issue resistance was significant [ $F(2, 160.76) = 38.89, p \leq .001$ ] for the patient's likelihood of behavior change. This significant interaction indicates a synergistic effect resulting from an interaction between the two independent variables, i.e. relational resistance and issue resistance. The participants perceived the patient in the low relational resistance with addressing of issues condition ( $M = 5.55, SE = .10$ ) as significantly more likely to consider a behavior change than the patient in all of the following conditions:

- The low relational resistance with reflecting the issues condition ( $M = 3.98, SE = .12; d = 1.12$ ).
- The high relational resistance with addressing the issues condition ( $M = 3.90, SE = .12; d = 1.17$ ).
- The low relational resistance with ignoring the issues condition ( $M = 3.67, SE = .14; d = 1.21$ ).
- The high relational resistance with reflecting the issues condition ( $M = 3.53, SE = .12; d = 1.44$ ).
- The high relational resistance with ignoring the issues condition ( $M = 3.30, SE = .12; d = 1.60$ ).

Also, the participants perceived the patient in the low relational resistance with reflecting of issues condition ( $M = 3.98, SE = .12$ ) as significantly more likely to consider

a behavior change than the patient in high relational resistance with ignoring issues condition ( $M = 3.30$ ,  $SE = .12$ ;  $d = .45$ ).

Additionally, the patient's likelihood of behavior change yielded a large effect size ( $d = .88$ ) for the difference between the actual MI condition ( $M = 5.55$ ,  $SE = .10$ ) and the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 4.31$ ,  $SE = .12$ ). This difference is an estimate of the effect of the synergy alone after deducting the main effects for addressing relational resistance and issue resistance. There was a small effect size ( $d = .22$ ) for the main effect for addressing relational resistance estimated as the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 4.31$ ,  $SE = .12$ ) and the high relational resistance with addressing issues condition ( $M = 3.90$ ,  $SE = .12$ ). Also, there was a small effect size ( $d = .22$ ) for the main effect for addressing the issue resistance estimated from the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 4.31$ ,  $SE = .12$ ) and the low relational resistance with reflecting issues condition ( $M = 3.98$ ,  $SE = .12$ ).

Table 6

*Main Effects and Interaction Effect for the Patient's Likelihood of Behavior Change*

Relational resistance	Mean	Standard error
High	3.58 <sup>a</sup>	.11
Low	4.40 <sup>a</sup>	.10

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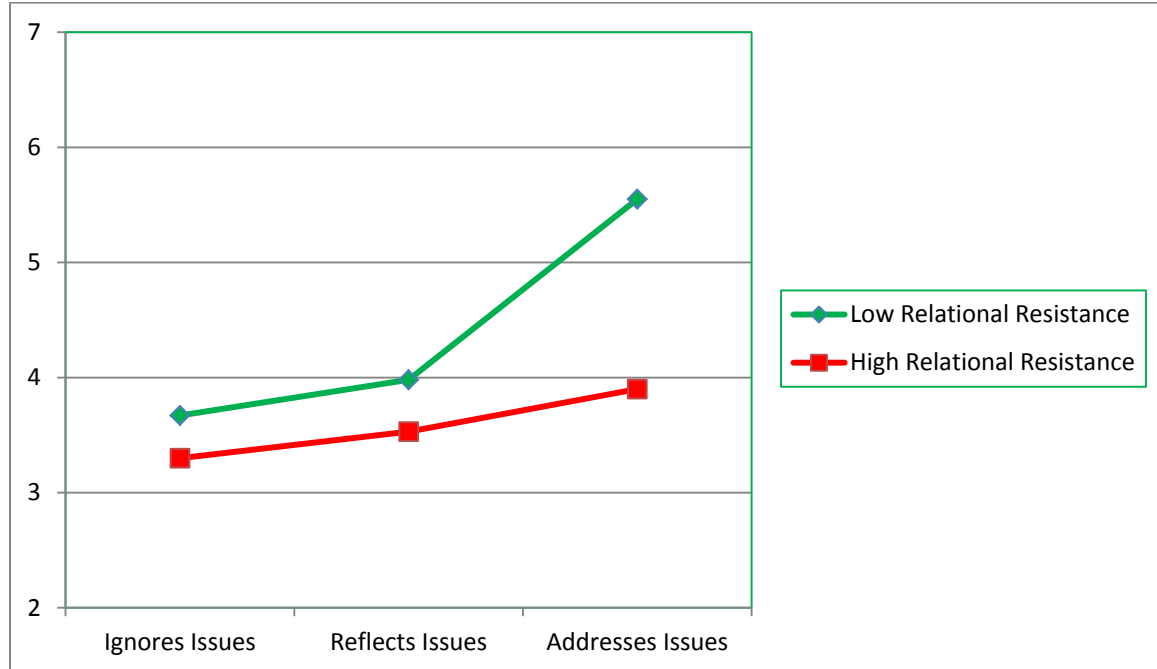
Issue resistance	Mean	Standard error
Ignores	3.48 <sup>ac</sup>	.11
Reflects	3.75 <sup>bc</sup>	.11
Addresses	4.73 <sup>ab</sup>	.09

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Issue resistance	Relational resistance	
	High	Low
Ignores	3.30 (.12) <sup>af</sup>	3.67 (.14) <sup>b</sup>
Reflects	3.53 (.12) <sup>c</sup>	3.98 (.12) <sup>df</sup>
Addresses	3.90 (.12) <sup>e</sup>	5.55 (.10) <sup>abcde</sup>

The cells sharing the same superscript are significantly different from each other at  $p < .05$ .

Figure 7. Cell means for the patient's likelihood of behavior change.



**The perceived medical knowledge of the physician.** The main effect for relational resistance was significant [ $F(1, 161.24) = 146.70, p \leq .001$ ] for the perceived medical knowledge of the physician. The physician in the low relational resistance condition ( $M = 5.49, SE = .11$ ) was judged as possessing more medical knowledge than the physician in the high relational resistance condition ( $M = 4.39, SE = .12; d = .75$ ).

The main effect for issue resistance was significant [ $F(2, 161.52) = 90.07, p \leq .001$ ] for the perceived medical knowledge of the physician. The participants' perceived medical knowledge of the physician was highest for addressing issues ( $M = 5.55, SE = .11$ ), followed by reflecting issues ( $M = 4.76, SE = .12$ ) and then by ignoring issues ( $M = 4.51, SE = .12$ ). All differences between the three levels of issue resistance were significant. The participants perceived the medical knowledge of the physician who addressed the patient's issues to be significantly greater than the physician who just reflected the patient's issues ( $d = .54$ ) and the physician who ignored the patient's issues

( $d = .71$ ). Also, the participants perceived the medical knowledge of the physician to be significantly greater when the patient's issues were reflected than when the patient's issues were ignored ( $d = .16$ ).

The interaction effect for relational resistance by issue resistance was significant [ $F(2, 161.14) = 19.98, p \leq .001$ ] for the perceived medical knowledge of the physician. The participants' perceived medical knowledge of the physician was significantly greater for the low relational resistance with addressing the patient's issues condition ( $M = 6.32, SE = .10$ ) than for the following conditions:

- The low relational resistance with reflecting the patient's issues condition ( $M = 5.15, SE = .12, d = .83$ ).
- The low relational resistance with ignoring the patient's issues condition ( $M = 4.99, SE = .14, d = .86$ ).
- The high relational resistance with addressing the patient's issues condition ( $M = 4.78, SE = .13, d = 1.05$ ).
- The high relational resistance with reflecting the patient's issues condition ( $M = 4.38, SE = .13, d = 1.31$ ).
- The high relational resistance with ignoring the patient's issues condition ( $M = 4.02, SE = .13, d = 1.56$ ).

Also, the participants' perceived medical knowledge of the physician was significantly higher for the low relational resistance with reflecting the patient's issues condition ( $M = 5.15, SE = .12$ ) than for:

- The high relational resistance with reflecting the patient's issues condition ( $M = 4.38, SE = .13; d = .48$ ).

- The high relational resistance with ignoring the patient's issues condition ( $M = 4.02$ ,  $SE = .13$ ;  $d = .71$ ).

Likewise, the perceived medical knowledge of the physician was significantly higher for the low relational resistance with ignoring the patient's issues condition ( $M = 4.99$ ,  $SE = .14$ ) than for high relational resistance with ignoring the patient's issues condition ( $M = 4.02$ ,  $SE = .13$ ;  $d = .56$ ).

In addition, the participants' perceived medical knowledge of the physician yielded a moderate effect size ( $d = .45$ ) for the difference between the actual MI condition ( $M = 6.32$ ,  $SE = .10$ ) and the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.65$ ,  $SE = .13$ ). This difference is an estimate of the effect of the synergy alone after partialling out the main effects for addressing relational resistance and issue resistance. There was a moderate effect size ( $d = .53$ ) for the main effect for addressing relational resistance estimated as the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.65$ ,  $SE = .13$ ) and the high relational resistance with addressing issues condition ( $M = 4.78$ ,  $SE = .13$ ). Also, there was a small effect size ( $d = .31$ ) for the main effect for addressing the issue resistance estimated from the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.65$ ,  $SE = .13$ ) and the low relational resistance with reflecting issues condition ( $M = 5.15$ ,  $SE = .12$ ).

Table 7

*Main Effects and Interaction Effect for the Medical Knowledge of the Physician*

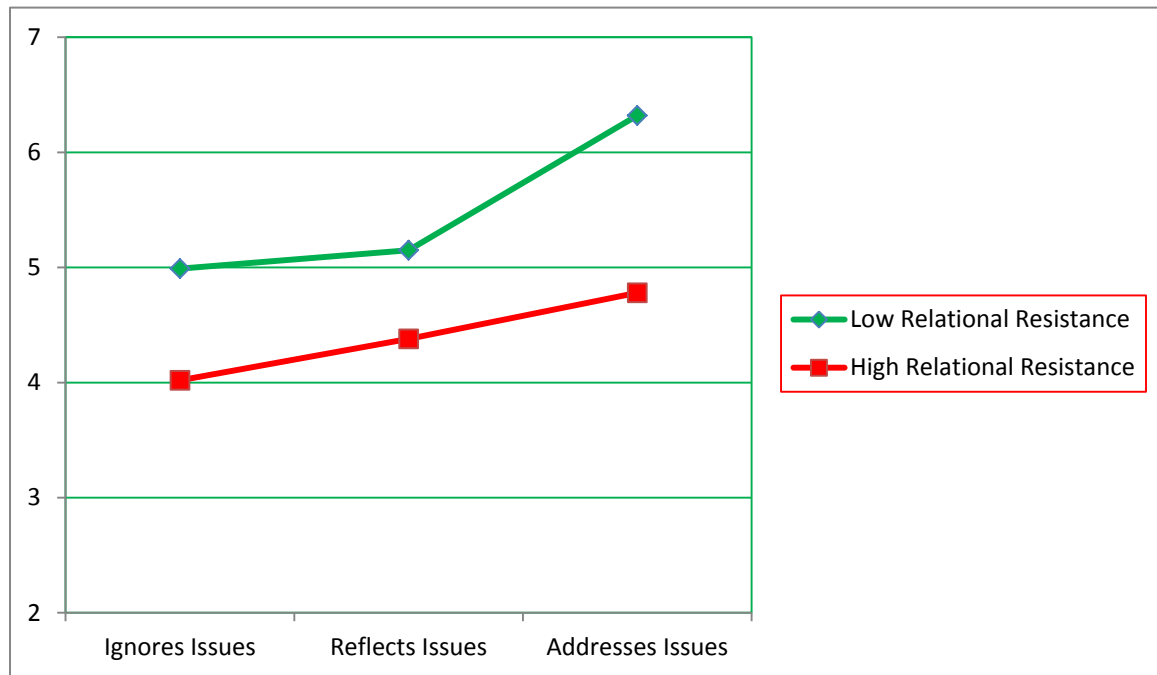
Relational resistance	Mean	Standard error
High	4.39 <sup>a</sup>	.12
Low	5.49 <sup>a</sup>	.11

Issue resistance	Mean	Standard error
Ignores	4.51 <sup>ac</sup>	.12
Reflects	4.76 <sup>bc</sup>	.12
Addresses	5.55 <sup>ab</sup>	.11

Issue resistance	Relational resistance	
	High	Low
Ignores	4.02 (.13) <sup>agh</sup>	4.99 (.14) <sup>bh</sup>
Reflects	4.38 (.13) <sup>cf</sup>	5.15 (.12) <sup>dfg</sup>
Addresses	4.78 (.13) <sup>e</sup>	6.32 (.10) <sup>abcde</sup>

The cells sharing the same superscript are significantly different from each other at  $p < .05$ .

Figure 8. Cell means for the perceived medical knowledge of the physician.



**The perceived helpfulness of the physician.** The main effect for relational resistance was significant [ $F(1, 161.02) = 171.21, p \leq .001$ ] for the perceived helpfulness of the physician. The physician in the low relational resistance condition ( $M = 5.12, SE = .10$ ) was judged by participants as significantly more helpful than the physician in the high relational resistance condition ( $M = 3.81, SE = .11; d = .98$ ).

The main effect for issue resistance was significant [ $F(2, 161.20) = 98.16, p \leq .001$ ] for the perceived helpfulness of the physician. The physician who addressed the patient's issues ( $M = 5.19, SE = .09$ ) was evaluated as the most helpful, followed by the physician who reflected the patient's issues ( $M = 4.26, SE = .10$ ) and the physician who ignored the patient's issues ( $M = 3.95, SE = .11$ ) was evaluated as the least helpful. The differences among the three levels of addressing the issue resistance were significant. The participants perceived the physician as significantly more helpful when their issues were



addressed than when their issues were reflected ( $d = .77$ ) and ignored ( $d = .97$ ) by the physician. Also, the participants perceived the physician to be significantly more helpful when their issues were reflected than when their issues were ignored by the physician ( $d = .23$ ).

The interaction effect for relational resistance by issue resistance was also significant [ $F(2, 161.03) = 20.87, p \leq .001$ ]. The participants' perceived helpfulness of the physician was significantly higher for the low relational resistance with addressing issues condition ( $M = 6.12, SE = .09$ ) than the following conditions:

- The low relational resistance with reflecting the patient's issues condition ( $M = 4.79, SE = .12, d = .99$ ).
- The low relational resistance with ignoring the patient's issues condition ( $M = 4.45, SE = .14, d = 1.11$ ).
- The high relational resistance with addressing the patient's issues condition ( $M = 4.25, SE = .12, d = 1.39$ ).
- The high relational resistance with reflecting the patient's issues condition ( $M = 3.73, SE = .13, d = 1.68$ ).
- The high relational resistance with ignoring the patient's issues condition ( $M = 3.46, SE = .12, d = 1.97$ ).

Also, there was a significant difference between the high relational resistance with addressing the issues condition ( $M = 4.25, SE = .12$ ) and high relational resistance with ignoring the issues condition ( $M = 3.46, SE = .12; d = .52$ ).

Furthermore, low relational resistance with reflecting of issues condition ( $M = 4.79, SE = .12$ ) was significantly greater than high relational resistance with reflecting of

issues condition ( $M = 3.73$ ,  $SE = .13$ ,  $d = .67$ ) and the high relational resistance with ignoring of the issues condition ( $M = 3.46$ ,  $SE = .12$ ,  $d = .87$ ).

Finally, the low relational resistance with ignoring of issues condition ( $M = 4.45$ ,  $SE = .14$ ) was significantly greater than high relational resistance with reflecting of issues condition ( $M = 3.73$ ,  $SE = .13$ ,  $d = .42$ ) and high relational resistance with ignoring of issues condition ( $M = 3.46$ ,  $SE = .12$ ,  $d = .60$ ).

Additionally, the participants' perceived helpfulness of the physician showed a moderate effect size ( $d = .63$ ) for the difference between the actual MI condition ( $M = 6.12$ ,  $SE = .09$ ) and the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.27$ ,  $SE = .12$ ). This difference is an estimate of the synergy alone after partialling out the main effects for addressing relational resistance and issue resistance. There was a moderate effect size ( $d = .67$ ) for the main effect for addressing relational resistance estimated as the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.27$ ,  $SE = .12$ ) and the high relational resistance with addressing issues condition ( $M = 4.25$ ,  $SE = .12$ ). Also, there was a small effect size ( $d = .31$ ) for the main effect for addressing issue resistance estimated from the difference between the estimated MI condition (with two significant main effects and no interaction effect) ( $M = 5.27$ ,  $SE = .12$ ) and the low relational resistance with reflecting issues condition ( $M = 4.79$ ,  $SE = .12$ ).

Table 8

*Main Effects and Interaction Effect for the Helpfulness of the Physician*

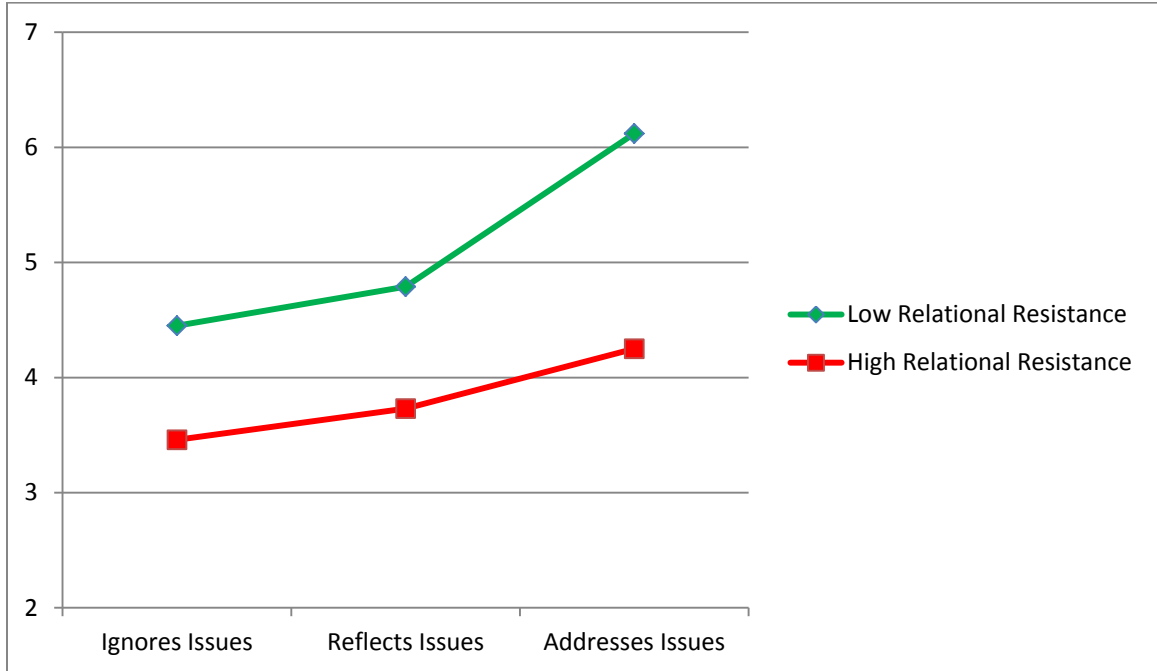
Relational resistance	Mean	Standard error
High	3.81 <sup>a</sup>	.11
Low	5.12 <sup>a</sup>	.10

Issue resistance	Mean	Standard error
Ignores	3.95 <sup>ac</sup>	.11
Reflects	4.26 <sup>bc</sup>	.10
Addresses	5.19 <sup>ab</sup>	.09

Issue resistance	Relational resistance	
	High	Low
Ignores	3.46 (.12) <sup>afhj</sup>	4.45 (.14) <sup>bij</sup>
Reflects	3.73 (.13) <sup>cgi</sup>	4.79 (.12) <sup>dgh</sup>
Addresses	4.25 (.12) <sup>ef</sup>	6.12 (.09) <sup>abcde</sup>

The cells sharing the same superscript are significantly different from each other at  $p < .05$ .

Figure 9. Cell means for the perceived helpfulness of the physician.



## V. DISCUSSION

The purpose of this study was to examine whether participants' responses to counseling in MI vary along two synergistic dimensions of resistance in the patient, i.e relational and issue resistance. This study hypothesized that people's judgments about patient interaction with healthcare providers vary as main effects of each dimension and as the interaction of the two dimensions of addressing resistance in the patient. This chapter discusses how the significant results supported the hypotheses. Finally the chapter discusses the limitations of the study, the implications for practitioners and researchers, and the directions for future research.

### **Multivariate Results**

The results of this study support all three multivariate hypotheses proposed in Chapter II. The results of the statistical analysis for each multivariate effect are discussed next.

The study hypothesized a significant main effect for addressing relational resistance. The results indicated a significant multivariate main effect for relational resistance. The effect size (partial eta squared) was .81 revealing that 81% of the variance in participants' judgments of the provider and the consultation was explained by the provider's addressing of the patient's relational resistance after partialling out the variance attributable to the main effect of addressing issue resistance, the interaction effect, and the random effect of the providers. This very large effect size shows how important it is for the provider to respect the patient's face while counseling the patient.

This study also hypothesized a main effect for addressing issue resistance in the patient. The results revealed a significant multivariate main effect for issue resistance with an effect size (partial eta squared) of .34. In other words, 34% of the variance in the participants' judgments of the provider and the consultation was explained by the provider's addressing of the patient's issue resistance after partialling out the variance attributable to the main effect for addressing relational resistance, the interaction effect and the random effect of the providers. This large effect size also reveals the importance of addressing issue resistance in the patient.

Finally, this study hypothesized a significant multivariate interaction effect for relational resistance by issue resistance. The results showed a significant interaction effect for relational x issue resistance with an effect size (partial eta squared) of .25, indicating a medium effect. This magnitude of effect indicates that 25% of the variance in the participants' judgments of provider was explained by the provider's addressing both relational and issue resistance in the patient simultaneously after partialling out the variance attributable to the main effects of addressing the patient's relational resistance and issue resistance plus the random effect of the providers.

In summary, the multivariate results highlight the importance of both respecting the patient's face and addressing the patient's issues as participants' judgments vary along these dimensions of addressing resistance. Given the significant multivariate results for all three effects, there is justification to look at the univariate results for the five dependent variables.

## Univariate Results

The two main effects and the interaction effect for the two dimensions, i.e. addressing relational and issue resistance, are discussed for each of the five dependent variables.

**The physician's being accepting/respectful of the patient.** The first hypothesis was that providers in the low relational resistance condition would be judged significantly more accepting/respectful of the patient than providers in the high relational resistance condition. This hypothesis was supported by the findings of this study. The providers in the low relational resistance condition were judged as significantly more accepting/respectful of the patient than the providers in the high relational resistance condition as shown in Table 4. This difference between the low relational resistance condition and the high relational resistance condition yielded a remarkably large effect size (Cohen's  $d = 2.34$ ). In other words, the mean for the physician's being accepting/respectful of the patient for the low relational resistance condition was situated at the 97.7<sup>th</sup> percentile of the high relational resistance condition. This strikingly large effect size could possibly be because the judgment of the provider's being accepting/respectful of the patient is conceptually extremely close to the operationalization of the relational dimension as either saving face for the patient or losing face for the patient.

This finding of an extremely large difference in the participants' judgments of the physician as being accepting/respectful of the patient between the low relational resistance and the high relational resistance reveals the importance of respecting the patient's face in MI counseling. The provider's respect for the patient's face is extremely

important if the patient is to feel accepted/respected by the provider. The respect for the patient's face in terms of being caring towards the patient is important. Being caring towards the patient such as by expressing concern for the patient's well being or expressing willingness to help the patient to manage his/her illness is important. Importantly, the provider should not judge the patient because it could create face loss for the patient. The provider's judging the patient could cause loss of the patient's competency face. For instance, the provider's judgment of the patient by saying "I seriously doubt that smoking is relieving your stress at all" could potentially threaten the patient's competency face. Also, not being prescriptive is important to show respect for the patient's face. For example the provider's telling the patient that "You need to stop drinking now" could threaten the patient's autonomy face. Instead the physician should respect the patient's autonomy face by letting the patient know that he/she is the one to make the decision whether or not to change his/her behavior. For example telling the patient that "It really is your decision about whether you want to quit smoking" would save the patient's face. Additionally, the provider should support the patient's self-efficacy by acknowledging the positive steps the patient has taken towards managing his/her illness. For example, the provider could tell the patient that "your taking your medicines as prescribed will definitely help you reduce the chances of a stroke".

The second hypothesis, which focused on the main effect for issue resistance, suggested that the participants' judgments about the physician as being accepting/respectful of the patient will significantly decrease in the following order, i.e., both reflecting and addressing the patient's issues > reflecting but not addressing the patient's issues > ignoring the patient's issues. This hypothesis was partially supported.



The physician who reflected and addressed the patient's issues was perceived as being significantly more accepting/respectful of the patient than the physician who reflected but did not address the patient's issues, with a medium effect size (Cohen's *d*) of .54. Also, there was a significant difference between the physician reflecting and addressing the patient's issues and the physician ignoring the patient's issues with a larger effect size of .69. There was no significant difference between the physician reflecting but not addressing the patient's issues, and the physician ignoring the patient's issues, although this difference approached significance ( $p = .07$ ) as seen in Table 4. Thus, it is evident from the considerable effect sizes that addressing the patient's issues markedly impacts the patient's feeling accepted/respected by the provider. When the patient's issues are reflected and subsequently addressed by providing targeted health information that is directly relevant to the patient's issues, the patient is much more likely to feel accepted/respected. The reflecting of the patient's issues followed by the providing of targeted information may have given a sense of satisfaction to the patient because his/her issues were given due consideration.

The difference between reflecting but not addressing the patient's issues and ignoring the patient's issues was nonsignificant. This nonsignificant result indicates that the patient did not feel significantly more accepted/respected by the provider when his/her issues were reflected than when his/her issues were ignored. This nonsignificant result could be because the provider's reflecting the issues could have given a feeling to the patient that the provider understood the patient's issues. However, when the provider did not address the issue, it may have given a sense to the patient that the provider may have deemed the issue unimportant to be addressed. In other words, the patient may feel

that “although the provider understands my issues, he doesn’t seem to consider it important enough for further discussion.” Thus, the benefit of reflecting the patient’s issues may have been cancelled by the disconfirmation of failing to address those issues. The patient may have felt that his/her issues were not given due consideration.

Also, the patient may have concluded that the provider ignored his/her issues by oversight. In other words, ignoring the issues may not necessarily have created a sense of deep face loss for the patient. The patient may have concluded that the provider may not have intended to be disrespectful of the patient by ignoring the issues. These two suggested reasons may account for the nonsignificant difference between reflecting but not addressing the patient’s issues and ignoring the patient’s issues.

The third hypothesis suggested a significant interaction effect for relational resistance by issue resistance such that the participants’ judgments of the providers would be significantly more accepting/respectful in the MI condition (low relational resistance, addressing the patient’s issue) as shown in the Table 4. However, this hypothesis was not supported by the results. There was no significant interaction effect for the judgment of how accepting/respectful the physician was of the patient as shown in Figure 5 where the lines for low relational resistance and high relational resistance are nearly parallel to each other across the three issue resistance conditions. These parallel lines signify two main effects without any interaction effect. The possible reason for no interaction effect could be that the patient perception of the provider as accepting/respectful is mostly dependent on how well the provider respects the patient’s face although there is a significant increase in the patient feeling accepted/respected when the patient’s issues are addressed.

These two effects are independent of each other and do not work synergistically to create an even stronger sense of the physician being accepting/respectful of the patient.

In summary, the provider's respecting the patient's face is crucial for the patient to feel that the provider was accepting/respectful of him/her. Also, addressing the patient's issues with targeted information increases the patient's perception of the provider as accepting/respectful of him/her. Reflecting the patient's issues but not addressing them is equivalent to ignoring the issues and hence reflecting of the patient's issues should always be followed by addressing of the patient's issues.

**The patient's likelihood of seeing the physician again.** This study hypothesized that the patient in the low relational resistance condition will be judged as significantly more likely to see the physician again compared to the patient in the high relational resistance condition. This hypothesis was supported and the findings suggested that the patient in the low relational resistance condition was significantly more likely to see the physician again than the patient in the high relational resistance condition as shown in Table 5. The effect size (Cohen's *d*) was 1.14 representing a very large effect size such that the mean for the low relational resistance condition for the patient's likelihood of seeing the physician again was at 86<sup>th</sup> percentile of the high relational resistance condition.

Thus, a provider's respect for the patient's face is critical if the patient is to decide to see the provider again. The provider's being caring towards the patient by indicating the willingness to help the patient manage his/her illness or to assist the patient in the future was crucial if the patient is to see the provider again in the future. Also, the provider should not be prescriptive and should avoid telling the patient what he/she ought

to do as telling the patient what he/she ought to do could threaten the patient's autonomy face. For example, telling the patient "you need to take your medicine as prescribed if you care about your health" threatens the patient's autonomy face. Most importantly, the provider should not question or judge the patient as it may threaten the patient's competency face. Even if the patient has mistaken understanding about the illness or the disease state, the provider should avoid judging the patient as that could threaten the patient's competency face. Additionally, the provider should support the positive health behavior of the patient or even acknowledge the patient's consideration about changing his/her behavior such as a patient considering to quit drinking.

With regard to the dimension of issue resistance, it was hypothesized that the participants' judgments of the patient's likelihood of seeing the provider again will significantly decrease in the following order, i.e., reflecting and addressing the issues > reflecting but not addressing the issues > ignoring the issues. This hypothesis was fully supported by the findings of this study. The patient in the reflecting and addressing issues condition was judged significantly more likely to see the physician again than the patient in the reflecting but not addressing issues condition, with a small to medium effect size (Cohen's *d*) of .40. Also, there was a significant difference between reflecting and addressing the patient's issues condition and ignoring the patient's issues condition with an effect size (Cohen's *d*) of .56. Additionally, there was also a significant difference between the reflecting but not addressing the issues condition and ignoring the issues condition, with a small effect size (Cohen's *d*) of .18.

Although the difference between the three levels of addressing issue resistance was not as high in comparison to the difference for the two levels of addressing relational

resistance condition, the differences between the three levels of the issue resistance conditions were significant. Thus, it is important for a provider to address the patient's issues with targeted information that is specific to the patient's issues rather than only reflecting or ignoring the patient's issues. This addressing of issues will increase the chances of the patient seeing the provider again in the future.

Additionally, there was a significant difference between reflecting the patient's issues and ignoring the patient's issues with a small effect size for the patient's likelihood of seeing the physician again. The provider's ignoring the patient's issues could have made the patient feel that the "the provider either didn't hear me or he heard but ignored my issue." Although ignoring the issue may not necessarily make the patient feel that the provider was intentionally disrespectful of the patient as it is also possible that the provider didn't hear the issue, it could leave the patient worried. It is likely that the patient would feel a bit worried or unsafe meeting the provider again who hasn't heard or is unaware of the patient's issues concerning his/her illness. Rather the patient may feel relatively safer seeing the provider again who at least assures the patient through reflection that he/she has heard the patient's issue. The patient feeling assured that the provider did understand the issue could give a sense of relief to the patient. The patient may feel much safer following the treatment suggested by the provider who has heard the issues than the provider who the patient is uncertain even has any cognizance of the patient's issues.

Finally, it was hypothesized that the participants' judgments about the patient's likelihood of seeing the provider again will be significantly higher for the MI condition than the simple sum of the main effects for addressing relational and issue resistance.

This hypothesis was not supported by the findings of the study. There was no significant interaction effect for the MI condition. As shown in Figure 6, the lines for the low and high relational resistance conditions are nearly parallel to each other indicating no interaction effect.

In summary, it is essential for the provider to respect the patient's face and to respond to the patient's issues by offering specific information that is relevant to the patient's issues, if the patient is to decide to see the provider again.

The previous section discussed the results for two judgments, i.e., the physician's being accepting/respectful of the patient and the patient's likelihood of seeing the physician again. The next section will discuss the similarities in the results for these two judgments.

The two judgments, i.e., the patient's perception of the physician as being accepting/respectful of the patient and the patient's likelihood of seeing the physician yielded significant main effects for addressing relational resistance and addressing issue resistance but no significant interaction effect for relational by issue resistance. In other words, these two judgments showed no synergistic effect as a result of the physician's simultaneously addressing both dimensions of resistance in the patient.

Moreover, the two judgments, i.e., the physician's being accepting/respectful of the patient and the patient's likelihood of seeing the physician again are predominantly affected by the addressing of the relational resistance dimension. Addressing of relational resistance has a greater weight in determining the patient's judgments of the physician as accepting/respectful and the patient's likelihood of seeing the physician again than the addressing of issue resistance as is evidenced by the relatively large effect size for

addressing the relational resistance ( $d = 2.34$ ). However, the addressing of issue resistance should not be underestimated insofar as it still adds significantly to the patient's feeling accepted/respected by the physician and the patient's likelihood of seeing the physician again with medium effect sizes for the difference between addressing issue resistance and ignoring issue resistance ( $d = .69$ ).

In contrast to the two dependent variables just discussed that indicated no interaction effect for relational by issue resistance, the last three dependent variables showed a significant interaction effect for relational by issue resistance. Specifically, this second pattern of results included the following three judgments: the likelihood of behavior change by the patient, the perceived helpfulness of the physician and the perceived medical knowledge of the physician. Each of these three judgments that come under the second pattern of results is discussed next.

**The patient's likelihood of behavior change.** This study hypothesized that the patient in the low relational resistance condition will be judged significantly more likely to consider a behavior change than the patient in the high relational resistance condition. The results of this study supported this hypothesis as shown in Table 6, i.e. the patient in the low relational resistance condition was judged as significantly more likely to consider a behavior change than the patient in the high relational resistance condition with an effect size (Cohen's  $d$ ) of .61. This medium effect size indicates that the mean for the likelihood of the patient considering a behavior change for the low relational resistance condition was at 73 percentile of the high relational resistance condition.

Thus, it is apparent from the moderate effect size that respecting the patient's face is essential if the patient were to consider a behavior change. The patient is more likely to consider a behavior change when:

- The provider indicates care and concern for the patient,
- The provider is nonjudgmental of the patient,
- The provider is not prescriptive,
- The provider supports the patient's self-efficacy.

Also, it was hypothesized that the participants' judgments about the patient's likelihood of considering a behavior change will significantly decrease in the following order, i.e., reflecting and addressing the patient's issues > reflecting but not addressing the patient's issues > ignoring the patient's issues. The findings of this study fully supported this hypothesis. The participants were significantly more likely to consider a behavior change when their issues were both reflected and addressed than when their issues were reflected but not addressed with a large effect size (Cohen's *d*) of .77. Also, there was a significant difference between reflecting and addressing the issues condition and ignoring the issues condition, representing a very large effect size (Cohen's *d*) of .98. Finally, there was a significant difference between reflecting but not addressing the issues condition and ignoring the issues condition with a small effect size (Cohen's *d*) of .19.

The evidently large effect size of .98 for the difference between the physician's reflecting and addressing the patient's issues and the physician's ignoring the patient's issues shows the necessity for the physician to address the patient's issues. Also, the effect size for the difference between both reflecting and addressing the patient's issues and reflecting but not addressing the patient's issues was .77, which was also large. The



addressing of the patient's issues with information that directly targets the patient's issues can have a major impact on the perceived likelihood of the patient reassessing his/her decisional balance. The provider's addressing of the patient's issues may engage the patient's reasoning and help the patient get unstuck from a state of ambivalence or resistance about considering a behavior change. The provision of information by the provider helps the patient to reconsider his/her decisions in the light of the new information that specifically answered his/her issues/questions.

Finally, it was hypothesized that there would be a significant interaction effect for relational by issue resistance such that the participants would judge the patient as more likely to consider a behavior change in the MI cell (low relational resistance, addressing the patient's issue) than the simple sum of the main effects for addressing relational and issue resistance as shown in the Table 6. This hypothesis was supported by the findings of this study. There was a significant synergistic effect for the MI condition beyond the simple sum of the main effects for addressing the relational and issue resistance. This strong synergistic effect is evidenced in Figure 7 by a sharp increase in the likelihood of behavior change when the patient's issues are addressed in the low relational resistance condition. As shown in Table 5, the patient's likelihood of behavior change was significantly greater in the MI cell than in:

- The cell for low relational resistance with reflecting but not addressing the patient's issues with a very large effect size (Cohen's *d*) of 1.12.
- The cell for high relational resistance with reflecting and addressing the patient's issues condition with a very large effect size (Cohen's *d*) of 1.17.

- The cell for low relational resistance with ignoring the issues condition with a very large effect size (Cohen's  $d$ ) of 1.21. The cell for high relational resistance with reflecting the issues condition with an extremely large effect size (Cohen's  $d$ ) of 1.44.
- The cell for high relational resistance with ignoring the issues with an extremely large effect size (Cohen's  $d$ ) of 1.60.

Additionally, the patient's likelihood of behavior change was significantly greater for the low relational resistance with reflecting the patient's issues condition than the cell for high relational resistance with ignoring the patient's issues condition with a medium effect size (Cohen's  $d$ ) of .45.

Also, the effect size for the synergy alone was estimated as the difference between the actual MI condition and the estimated MI condition (with two significant main effects and no interaction effect). The effect size for synergy alone ( $d = .88$ ) after deducting the main effects of addressing relational resistance and issue resistance revealed that it was far greater in magnitude than the main effects for addressing relational resistance ( $d = .22$ ) and issue resistance ( $d = .22$ ). The synergy alone indicated a large effect size while the main effects for addressing relational resistance and issue resistance indicated small effect sizes. Moreover, the effect size for the synergy alone was greater than the simple sum of the main effects for addressing the two dimensions of resistance in the patient. Thus, the large effect size for synergy alone stresses the need for the provider to focus on achieving this synergy by addressing both the dimensions of resistance in the patient simultaneously so that the patient is more likely to consider a behavior change.

The synergistic effect obtained as a result of the interaction between concurrently addressing relational and issue resistance shows the importance of addressing the patient's issues while also being respectful of the patient's face in order to increase the likelihood of the patient considering a behavior change. The provider should not invalidate the patient's perspectives while addressing the patient's issues, which otherwise could cause face loss for the patient. When a provider offers precise information to the patient that directly answers his/her issues, it is important not to tell the patient what the final conclusion ought to be. The information should help the patient rethink and reconsider his/her decision about behavior change. In other words, the provision of information should not be followed by provider's claim/conclusion. The claim or conclusion has to be elicited from the patient by the provider.

When the patient's issues are reflected and addressed by the provider with relevant information, the patient may feel understood and conclude that his/her issues were given due consideration. For example, the patient may feel that "the provider answered my questions" or "the provider clarified my doubts". Consequently, the patient may be more receptive to listen to the provider because the provider is focused on the patient's issues. The patient is no more preoccupied with his/her issues because the provider is eliciting the patient's issues and answering them compared to a situation where the provider is prescriptive and the patient is preoccupied with his/her issues that the provider has not addressed. For example, a patient may remain preoccupied with the prospects of side effects from the medicine when the provider is telling the patient to take the medicine as prescribed.

Also, when the provider in the MI cell is not prescriptive and instead explores the patient's viewpoints, the patient is likely to feel that "this provider has no agenda or goal to change my (drinking) behavior" or "this provider is interested in knowing what I think about the information that he/she shared with me". Thus, the patient gains trust in the provider because not only the provider answers the patient's issues but also lets the patient think through the information and make a decision about change. Thus, the patient perceives no hidden agenda in the provider's addressing the patient's issues and feels free to think for himself/herself about the information shared by the provider.

After addressing the patient's issues with relevant information, when the provider lets the patient make his/her own decisions concerning behavior change without being prescriptive, the patient is on his own to think through and make a decision. Consequently, the patient's reasoning is stimulated and he/she engages in the weighing the pros and cons of engaging in behavior change. The patient's decisional balance may shift towards the positive side based on reasoning through the information shared by the provider. This shift in the decisional balance to the positive end of change could trigger change talk from the patient and therefore the likelihood of behavior change may increase. But if the patient reasons through the information shared by the provider and continues to maintain the status-quo, then the patient is likely to feel dissonant. This dissonance is created because the patient's decision about change is not consistent with his/her knowledge about the negative effects of his/her current health behavior. As the knowledge about the negative consequences of the behavior and the decision to maintain that behavior are not harmonious with each other, dissonance is likely to be experienced by the patient.

Briefly, reflecting and addressing of the patient's issues may result in the patient becoming more receptive to the provider. When the patient's issues are addressed by the provider without being prescriptive, the patient may develop trust in the provider because the provider is focused on the patient's issues without having any hidden agenda to change the patient. Additionally, when the provider explores the patient's perspectives, the patient is now on his own to make decisions. Thus, the patient is more likely to engage in reasoning by weighing the pros and cons of change before making his/her decisions. If the patient's decision about behavior change is consistent with the patient's knowledge about the negative consequences of the behavior on his/her health, behavior change would follow. Otherwise, the patient may experience dissonance because there would be a disharmony between the patient's current behavior and his/her knowledge about the harmful effects of the behavior (based on thinking through the information received from the provider). For example, the patient's knowledge that drinking could exacerbate his/her liver damage and the patient's decision to continue to drink could leave the patient feeling dissonant. Thus, the dissonance experienced by the provider could increase the likelihood that the patient may consider a behavior change in the future. Thus, addressing of the patient's issues with relevant information ultimately while being respectful of the patient's face may eventually result in increasing the likelihood of the patient making a decision that is consistent with his/her knowledge about the behavior. Therefore, the process of increasing the patient's receptivity to the provider, trust in the provider, reasoning through the information shared by the provider and tendency to make a decision in favor of behavior change to reduce dissonance may have resulted in the synergy as observed in the MI cell.

The approach to addressing the patient's issues by respecting the patient's face would not only help in deriving the benefits of the main effects for addressing relational and issue resistance but also the synergistic effect resulting from the interaction between addressing the two dimensions of resistance. The patient's likelihood of behavior change is arguably the most important of the five judgments serving as dependent variables in this study. As will soon become evident, the likelihood of behavior change exhibited the greatest synergistic effect when compared to the other dependent variables.

**The perceived medical knowledge of the physician.** Firstly, this study hypothesized that the physician in the low relational resistance condition would be judged as significantly more knowledgeable than the physician in the high relational resistance condition. The findings of this study supported this hypothesis as shown in Table 7 with a moderate to large effect size (Cohen's *d*) of .75.

Thus, it is important for a physician to respect the patient's face if the patient is to perceive the physician as possessing medical expertise, which is evident from the moderate effect size for the difference between the low and the high relational resistance for the perceived medical knowledge of the physician. The perceived medical knowledge of the physician is likely to increase when:

- The provider shows care and concern for the patient,
- The provider does not judge the patient,
- The provider is not prescriptive,
- The provider supports the patient's self-efficacy

The physician being caring towards the patient and indicating willingness to help the patient in managing his/her illness is essential if the patient is to consider the

physician as knowledgeable. Additionally, the provider should be non-prescriptive and should avoid imposing his/her recommendations upon the patient. The provider being non-prescriptive will help save the patient's autonomy face. Also, the provider should not judge the patient and therefore respect the patient's competency face. In addition, the provider should acknowledge the positive steps considered or taken by the patient in managing his/her illness. The patient may perceive physician to be more knowledgeable in low relational resistance condition possibly because his/her face is not at stake. In other words, the patient is not experiencing defensiveness when the provider is sharing his/her medical expertise and therefore is able to recognize this expertise more easily. On the other hand, when the provider is challenging the patient with his/her medical expertise, the patient may not be able to appreciate the expertise and may try to discount the provider's expertise so as to save his/her face.

According to the theory of cognitive dissonance, discounting the credibility of the source of information is a major way of reducing dissonance. Both in the high relational resistance condition and in the low relational resistance condition, the patient may experience dissonance when the provider suggests that the patient's current behaviors are inconsistent with his/her health condition. In the low relational resistance condition, the provider's respect for the patient's face could result in the patient experiencing less defensiveness. As a result of reduced defensiveness experienced by the patient, the patient is likely to reduce dissonance by making his/her behavior consistent with the information gained about his/her health condition.

However, in the high relational resistance, the patient may experience defensiveness because the provider shows no respect for the patient's face. Also, in the

high relational resistance the patient may experience dissonance because his/her health behaviors are inconsistent with the information shared by the provider about his/her health condition. This experience of defensiveness by the patient on one hand due to face loss and the experience of dissonance on the other hand because of the disharmony between the information and the patient's behavior could result in the patient trying to reduce dissonance by invalidate the information and discounting the provider's expertise. This invalidating the information shared by the provider and discounting the provider's expertise may result in the patient perceiving the provider as less knowledgeable in the high relational resistance condition than in the low relational resistance condition. Thus, respecting the patient's face is very important for the patient to have greater trust in the provider's medical expertise/knowledge.

Secondly, this study hypothesized that the participants' perceived medical knowledge of the physician would be highest for reflecting and addressing the patient's issues, followed by reflecting but not addressing the patient's issues and lastly by ignoring the patient's issues. The hypothesis was fully supported by the findings of this study. The participants' perceived medical knowledge of the physician was significantly higher for reflecting and addressing the patient's issues than for reflecting but not addressing the patient's issues, with a medium effect size (Cohen's *d*) of .54. Also, there was a significant difference between reflecting and addressing the patient's issues condition and ignoring the patient's issues condition, marked by a medium to large effect size (Cohen's *d*) of .71. In addition, there was also a significant difference between reflecting but not addressing the patient's issues condition and ignoring the patient's issues condition, with a small effect size (Cohen's *d*) of .16.



Thus, it is extremely important to address the patient's issues so that the patient is feels that his/her questions/issues are responded to by the provider. As a result of addressing issues, the patient is also likely to feel that the provider is dependable and possess good medical expertise. Also, when the patient perceives the provider as an expert, he/she is more likely to give a greater weight to the information shared by the provider. This greater significance attributed to the information shared by provider could have an increased impact on the patient's decisional balance and could affect the patient's decision about engaging in a positive health behavior. Therefore, the findings of this study strongly support the importance of addressing the patient's issues.

Finally, it was hypothesized that there would be a significant interaction effect for relational by issue resistance such that the participants would perceive the physician in the MI condition (low relational resistance, addressing the patient's issue) as more knowledgeable than in the other conditions as shown in the Table 7. This hypothesis was supported by the results of the study. The synergistic interaction effect for the MI condition is evident from the sharp increase in the patient's perception of the physician as knowledgeable when the patient's issues were addressed in the low relational resistance condition as shown in the Figure 8.

As seen in Table 7, the perceived medical knowledge of the physician was significantly greater in the MI cell than in:

- The cell for the low relational resistance with reflecting but not addressing the patient's issues condition with a large effect size (Cohen's *d*) of .83.
- The cell for the low relational resistance with ignoring the patient's issues condition with a large effect size (Cohen's *d*) of .86.

- The cell for high relational resistance with reflecting and addressing the patient's issues condition with a very large effect size (Cohen's  $d$ ) of 1.05.
- The cell for high relational resistance with reflecting the patient's issues condition with a very large effect size (Cohen's  $d$ ) of 1.31.
- The cell for high relational resistance with ignoring the patient's issues condition with an extremely large effect size (Cohen's  $d$ ) of 1.56.

Also, the participants' perceived medical knowledge of the physician was significantly greater for the cell with the low relational resistance with reflecting the patient's issues condition than in:

- The cell for the high relational resistance with reflecting the patient's issues condition with a medium effect size (Cohen's  $d$ ) of .48.
- The cell for the high relational resistance with ignoring the patient's issues condition with a medium effect size (Cohen's  $d$ ) of .71.

Similarly, the participants' perceived medical knowledge of the physician was significantly higher for the cell for the low relational resistance with ignoring the patient's issues condition than for the cell for the high relational resistance with ignoring the patient's issues condition with a moderate effect size (Cohen's  $d$ ) of .56.

Furthermore, the effect size for the synergy alone for the perceived medical knowledge of the physician that was estimated as the difference between the actual MI condition and the estimated MI condition (with two significant main effects and no interaction effect) revealed a moderate effect size ( $d = .45$ ). This effect size for synergy alone was comparable in magnitude to the moderate effect size for the main effect for addressing relational resistance ( $d = .53$ ), while it was fairly greater than the small effect

size for the main effect for addressing issue resistance ( $d = .31$ ). Thus, the provider should focus on achieving this synergy by addressing both dimensions of resistance concurrently in the patient so that the patient would perceive the provider as knowledgeable.

Consequently, it is important for a provider to address the patient's issues in a manner that is respectful of the patient's face in order to achieve the synergy. The provider's addressing the patient's issue resistance and relational resistance simultaneously could help the patient to be receptive to the provider because now the provider is sharing information that the patient is seeking for. The information offered by the provider may not seem to the patient as means to oppose the patient's reluctance to engage in behavior change. As a result the patient may become more receptive to the information. Also, when the provider is respectful of the patient's autonomy face by being not prescriptive, then the patient would feel that "this provider has no agenda to push me to behavior change and he/she is mainly interested in helping me address my issues". When the patient feels that there is no agenda behind the provider's addressing the issues such as making the patient quit smoking, then the patient is no more on guard and is free to think about the information offered by the provider. The patient no more has to think of excuses to maintain his/her status-quo and this may enable the patient to reflect upon the information. As a result the patient is likely to develop greater trust in the provider and may develop an appreciation for his/her knowledge. This patient's trust in the medical expertise of the provider and the patient's thinking through the information shared by the provider could also help the patient make a decision in favor of positive health behavior change.

In summary, the findings of this study emphasize the importance of the provider addressing the patient's issues and being respectful of the patient's face so that the patient would have greater trust in the medical knowledge of the provider. The greater trust in the provider could increase the patient's chances of reflecting upon the information shared by the provider and reconsidering his/her decisions with regard to the medical information. Thus, addressing both dimensions of resistance in the patient could increase the patient's trust in the suggestions/recommendations shared by the provider.

**The perceived helpfulness of the physician.** This study hypothesized that the physician in the low relational resistance condition would be judged as significantly more helpful than the physician in the high relational resistance condition. The findings of this study supported this hypothesis as shown in the Table 8. The difference between the low and the high relational resistance revealed a large effect size (Cohen's *d*) of .98.

The findings of this study reveal the need for the provider to be respectful of the patient's face so that the patient will perceive the provider to be helpful. These findings indicate the need for the provider to be nonjudgmental and caring towards the patient. Also, the provider should support the patient's self-efficacy and should avoid being prescriptive with the patient. Although the provider in the high relational resistance condition may have communicated the same content, yet the difference in the patient's perceived helpfulness of the provider could be an indication of the differences in the receptivity of the patient in the two conditions of addressing relational resistance. When the provider is respectful of the patient's face, the patient maybe more receptive because the patient no more feels that the provider is trying to embarrass the patient. Therefore, the patient is likely to be less defensive and more receptive to what the provider has to

share with the patient. Conversely when the provider shows a lack of respect for the patient's face, the patient may invalidate the information shared by the provider because the patient may feel that the provider is trying to make arguments to compel the patient to change his/her behavior. Thus, it is essential for the provider to be respectful of the patient's face in order for the patient to perceive them as helpful.

Also, it was hypothesized that the patient's judgment about the physician as helpful would significantly decrease in the following order, i.e., reflecting and addressing the patient's issues > reflecting but not addressing the patient's issues > ignoring the patient's issues. The results of this study fully supported this hypothesis. There was a significant difference between reflecting and addressing the patient's issues and reflecting but not addressing the patient's issues with a medium to large effect size of .77. Also, there was a significant difference between reflecting and addressing the patient's issues and ignoring the patient's issues with a very large effect size of .97. Moreover, there was a significant difference between the reflecting but not addressing the patient's issues and ignoring the patient's issues with a small effect size of .23. The difference between addressing issues and reflecting issues was very high in comparison to the difference between reflecting and ignoring issues. Therefore, addressing of issues was perceived by the patient as the most helpful.

Consequently, it is highly important for the provider to address the patient's issues. Given the large difference between reflecting and addressing the patient's issues and reflecting but not addressing the patient's issues, it is evident that the provider's offering of information to the patient that is relevant to the patient's issues is perceived as more helpful than provider's reflecting but not addressing the patient's issues with

specific and relevant information. These findings emphasize the need for the provider to offer precise information to the patient that directly addresses the patient's issues.

According to the results of this study, it is crucial for the provider to appeal to the patient's reasoning process. The information offered by the provider could clarify the patient's doubts about managing his/her health behavior and as a result the patient may feel benefitted by talking to the provider. Thus, it is important to address the patient's issues so that the patient's knowledge about his/her illness or its treatment is improved.

Finally, this study hypothesized that there would be a significant interaction effect for relational by issue resistance such that the patient would perceive the physician in the MI condition (low relational resistance, addressing the patient's issues) as significantly more helpful as shown in the Table 8. The findings of this study supported this hypothesis. There was a significant synergistic interaction effect for the MI condition, which is visible from the sharp rise in the perceived helpfulness of the physician when the patient's issues were addressed in low relational resistance condition (see Figure 9). Importantly, there was a moderate effect size ( $d = .63$ ) for the synergy alone that was comparable in magnitude to the main effect for addressing relational resistance while it was far greater in magnitude to the effect size for addressing issue resistance ( $d = .31$ ) in the patient. Thus, the results emphasize the need for creating this synergy by addressing both dimensions of resistance in the patient simultaneously so that the provider would be perceived by the patient as helpful. As seen in Table 8, the participants' perceived helpfulness of the physician was significantly higher for the MI cell (low relational resistance with addressing issues condition) than in:

- The cell for the low relational resistance with reflecting the patient's issues condition with a large effect size of .99.
- The cell for the low relational resistance with ignoring the patient's issues condition with a very large effect size of 1.11.
- The cell for the high relational resistance with reflecting and addressing the patient's issues condition with a very large effect size of 1.39.
- The cell for the high relational resistance with reflecting the patient's issues condition with an extremely large effect size of 1.68.
- The cell for the high relational resistance with ignoring the patient's issues condition with an extremely large effect size of 1.97.

Also, there was a significant difference between the cell for the high relational resistance with reflecting and addressing the patient's issues condition and the cell for the high relational resistance with ignoring the patient's issues condition with a medium effect size of .52.

Furthermore, the cell for the low relational resistance with reflecting of the patient's issues condition was significantly greater than:

- The cell for the high relational resistance with reflecting the patient's issues condition with a medium effect size of .67.
- The cell for the high relational resistance with ignoring the patient's issues condition with a large effect size of .87.

Finally, the cell for the low relational resistance with ignoring the patient's issues condition was significantly greater than:

- The cell for the high relational resistance with reflecting the patient's issues condition with a small effect size of .42.
- The cell for the high relational resistance with ignoring the patient's issues condition with a medium effect size of .60.

The synergy obtained as a result of the physician's addressing of the patient's issues while being respectful of the patient's face indicates the need for a provider to address both dimensions of resistance so that the patient would feel helped after consulting the provider. The patient is more likely to be receptive to a caring and nonjudgmental provider who responds to the patient's issues than a provider who judges the patient and makes the patient defensive. Additionally, addressing issues but not respecting the patient's face, for example by being judgmental, could create frustration in the patient that could mitigate the patient's ability to appreciate the valuable information shared by the provider. On the other hand addressing the relational resistance and the issue resistance simultaneously may help the patient see that the information offered by the provider is not intended to maneuver the patient in the direction of behavior change. Rather the information shared by the provider who is not prescriptive is likely to be viewed by the patient as an effort to help answer the patient's issues. Also, the patient may perceive the information offered by the provider who is not prescriptive as helpful while the information offered by the provider who is prescriptive may be viewed by the patient as a maneuver to steer the patient in a specific direction. Thus, these findings stress how important it is for the provider to focus on the synergy of addressing both dimensions of resistance in the patient so that the patient could perceive the provider as helpful.



In summary, addressing the relational resistance is important for the patient to perceive the provider as helpful. The significant difference in the two levels of relational resistance may be because the receptivity of the patient to the help offered by the provider may increase when provider is nonjudgmental, caring and not prescriptive. Also, addressing the patient's issues has a strong impact on the patient feeling helped by the provider. Addressing the patient's issues and engaging the patient's reasoning increases the patient's perception of the provider as helpful. The provider's addressing the patient's issues with relevant information that answers the patient's questions help clarify the patient's doubts/misgivings about the medication/treatment and as a result the patient may feel helped by the provider. Additionally, there was a synergy in the perceived helpfulness of the provider when the patient's issues were addressed in a low relational resistance condition. Therefore, provider should engage the patient's reasoning by addressing the patient's issues with precise and specific information in a manner that shows respect for the patient's face.

The three judgments just discussed, i.e., the patient's perceived likelihood of behavior change, the perceived medical knowledge of the physician and the perceived helpfulness of the physician, constitute a second pattern of results different from the pattern of results previously reported for the judgments of how accepting/respectful the physician was of the patient and how likely it was that the patient would see the physician again. The three judgments constituting the second pattern are different from the pattern of results for the first two judgments in two respects. Firstly, the judgments in the second pattern indicated a relatively greater impact of addressing the patient's issue resistance than the judgments comprising the first pattern, i.e., the judgments of the physician's

being accepting/respectful of the patient and the patient's likelihood of seeing the physician again. Secondly, the judgments in the second pattern revealed a significant interaction effect that was not observed for the judgments comprising the first pattern. Both of these two differences that are distinctive to the second pattern are discussed next.

For the judgments in the second pattern, the main effect for addressing the issue resistance was relatively stronger than that for the main effect for addressing the issue resistance in the first pattern. The judgments in the second pattern were greatly affected by the addressing of issue resistance by the physician. The addressing of issue resistance had the strongest impact on the judgment of the patient's likelihood of behavior change. The effect size ( $d = .98$ ) for the difference between addressing the patient's issue resistance and ignoring the patient's issue resistance was greater than that of the effect size ( $d = .61$ ) for the difference between the low and the high relational resistance for the patient's likelihood of a behavior change. This uniqueness of the judgment of the patient's likelihood of behavior change reveals the tremendous impact of addressing the issues on the patient's decisional balance. Apparently, the decisional balance shifts towards the positive, which becomes evident from the participants' judgment of the likelihood of the patient considering a behavior change. These findings stress the need for the provider to engage the patient's reasoning when counseling the patient.

In addition to the likelihood of behavior change, the judgment of the perceived helpfulness of the physician was strongly affected by addressing the patient's issues. The difference between addressing the patient's issues and ignoring the patient's issues indicated a large effect size effect size ( $d = .97$ ). This distinct impact of addressing issues on the patient's perception of the helpfulness of the provider indicates the importance of

provider's addressing the patient's issues with targeted health information that precisely answers the patient's issues. These findings stress the necessity for the provider to appeal to the patient's reasoning so that the patient would feel helped by the provider.

The last of the three judgments in the second pattern that was strongly responsive to addressing of issues by the physician was the judgment of the perceived medical knowledge of the physician. The effect size ( $d = .71$ ) for the difference between addressing the patient's issues and ignoring the patient's issues was considerable, thus emphasizing the need for the provider to address the patient's issues with specific information that precisely targets the patient's issues. These results reveal that when the patient's reasoning process is stimulated, he/she is more likely to trust the medical expertise of the provider. This trust in the expertise of the provider is likely to affect how seriously the patient would consider the information shared by the provider. The importance the patient attributes to the information shared by providers could impact the patient's decision about engaging in behavior change.

Also, the uniqueness of the judgments in the second pattern is that they exhibited a significant interaction effect in addition to two significant main effects. The interaction effect exhibited by these dependent variables/judgments will be discussed next.

In the second pattern, the judgment of the patient's likelihood of behavior change indicated a strong synergistic interaction effect characterized by a large effect size ( $d = .88$ ) for the difference between the actual mean for the MI condition and the estimated mean for the MI condition (with two significant main effects and no interaction effect). This effect size of synergy for the patient's likelihood of behavior change far exceeded the effect size for the estimated main effects for addressing the relational resistance ( $d =$

.22) and the issue resistance ( $d = .22$ ) put together. The synergy was greater than the sum of the main effects for addressing the relational and the issue resistance. The judgment that showed the next highest effect size for the synergistic interaction effect was the perceived helpfulness of the physician ( $d = .63$ ) for the difference between the actual mean for the MI condition and the estimated mean for the MI condition (with two significant main effects and no interaction effect), representing a moderate effect size. The effect size for the synergistic interaction effect for the judgment of the perceived helpfulness of the physician was similar to the effect size for the main effect for addressing the relational resistance ( $d = .67$ ) and far exceeded the effect size for the main effect for addressing the issue resistance ( $d = .31$ ). Consequently, a provider should focus on producing the synergy by addressing both dimensions of resistance in the patient as the benefit obtained from it is almost equivalent to the effect obtained by being respectful of the patient's face and far greater than the effect obtained by addressing the patient's issues. Finally, the judgment of the physician's medical knowledge also indicated a moderate effect size for the interaction effect ( $d = .45$ ). The effect size for the synergistic interaction for the judgment of the perceived medical knowledge of the physician was greater than the effect size for the main effect for the issue resistance ( $d = .31$ ) and somewhat less than the effect size for the main effect for the relational resistance ( $d = .53$ ). Again this shows the importance of addressing the patient's relational resistance and the issue resistance simultaneously so that the patient would perceive the provider as knowledgeable. The large effect size for the synergistic interaction effect observed for the judgment of the patient's likelihood of behavior change indicates that the physician's

effectiveness in addressing the two dimensions of resistance is key to increasing the patient's likelihood of behavior change.

In summary, there was a significant main effect for both independent variables across all of the five judgments serving as the dependent variables. The judgments of the physician's being accepting/respectful of the patient, the perceived likelihood of the patient seeing the physician again, the patient's likelihood of a behavior change, the perceived helpfulness of the physician and the perceived medical knowledge of the physician all revealed a significant main effect for relational resistance. This main effect for addressing relational resistance indicates the necessity for the provider to respect the patient's face. In other words, the provider should be nonjudgmental, the provider should not be prescriptive and should indicate care and concern for the well-being of the patient. The provider's supporting of the patient's self-efficacy and willingness to extend help to the patient are also crucial. The impact of addressing relational resistance was exceptionally high for the judgments of the physician's being accepting/respectful of the patient and the likelihood of the patient seeing the physician again. As a result, provider's respecting of the patient's face is even more important if the patient is to perceive the physician as being accepting/respectful and if the patient is to see the physician again. The larger impact of relational dimension on the judgment of the physician as being accepting/respectful of the patient could have been because it is conceptually very similar to the operationalization of relational dimension as either respecting the patient's face or not respecting the patient's face.

The main effect for issue resistance was also significant for all five judgments. The provider should reflect and address the patient's issues so that:

- The patient would feel accepted/respected by the provider,
- The patient would be more likely to see the provider again,
- The patient would consider a behavior change,
- The patient would perceive the provider as helpful and
- The patient would perceive the provider as knowledgeable.

Consequently, it is essential for the provider to address the patient's issues with information that is directly relevant to the patient's issues. As discussed earlier, the main effect for addressing the issue resistance was particularly high for the judgments of the patient's likelihood of a behavior change, the perceived helpfulness of the physician and the perceived medical knowledge of the physician. Thus, it is especially important for the provider to both reflect and address the patient's issues so that the patient would be likely to consider a behavior change and perceive the provider as helpful and knowledgeable. The greater influence of addressing the patient's issue resistance on these three judgments indicates that these judgments are strongly affected by the provider's engagement of the patient's reasoning. The provider's engagement of the patient's reasoning is important for the patient to trust the medical expertise of the provider, to feel helped by the physician and finally to consider engaging in behavior change.

Also, it is noteworthy that the effect sizes for the difference between reflecting and ignoring the patient's issues were significant but small for four judgments, i.e. the patient's likelihood of seeing the physician again, the patient's likelihood of behavior change, the perceived medical knowledge of the physician and the perceived helpfulness of the physician, while this difference between ignoring and reflecting issues was nonsignificant for the physician's being accepting/respectful of the patient. The effect

sizes for the difference between ignoring issues and reflecting issues for the four judgments that showed significant differences were small and ranged from .16 to .23. This small range of effect sizes for the difference between ignoring issues and reflecting issues highlights the importance for the provider to both reflect and address the patient's issues because there is only minimal benefit of reflecting the patient's issues if it is not followed by addressing those issues. On the other hand as stated earlier, the effect size for the difference between addressing the patient's issues and ignoring the patient's issues is large for the patient's likelihood of behavior change. Hence reflecting of the patient's issues is to be followed by addressing those issues with targeted information if the patient is to consider a behavior change.

The interaction effect for relational by issue resistance was significant for three judgments, i.e. the patient's likelihood of a behavior change, the perceived helpfulness of the physician and the perceived medical knowledge of the physician. There was no interaction effect for the physician's being accepting/respectful of the patient and the likelihood of the patient seeing the physician again. The possible reason for no interaction effect for the judgments of the physician's accepting/respectful of the patient and the perceived likelihood of seeing the physician again is that these judgments are less influenced by the participants' reasoning based on the information shared by the provider. The participants may have made these judgments based mainly on the provider's respect for the patient's face, i.e., the provider's nonjudgmental stance, caring behavior, and not imposing his/her conclusions upon the patient. Thus, there may not have been much reasoning going on in the participants' minds about the information

shared by the provider before judging the provider as being accepting/respectful or judging the likelihood of the patient seeing the provider again.

In contrast, the judgments of the perceived likelihood of the patient considering a behavior change, the perceived helpfulness of the physician and the perceived medical knowledge of the physician may be based on the participants' reasoning through the information shared by the provider. One possible explanation for an interaction effect for these three judgments in the MI condition (low relational resistance, addressing issues) is that the participants in the MI condition may not have experienced face loss and therefore valued the information shared by the provider. On the other hand in high relational resistance with addressing the patient's issues condition, the participants may have invalidated the significance of the communicated information. This invalidation of the information conveyed by the provider could help the patient save his/her face. In other words, saving one's face takes precedence over understanding the reasoning behind the communicated message. When the message was communicated in a way that shows the patient in a position inferior to that of the provider, then there would have been bias in the appraisal of the provider and in the appraisal of the information shared by the provider. In other words, the participants may have discounted the significance of the information shared by the provider in order to save their own face.

Moreover, the participants may have experienced dissonance when the provider addressed the patient's issues in the low relational resistance condition. The participants' who were putting themselves in shoes of the patient could have experienced dissonance because the information shared by the provider was inconsistent with the patient's health behaviors. In the MI condition, when the patient's issues were addressed in the low



relational resistance condition, the participants may have reasoned through the information. Consequently, the participants may have considered changing their behavior in order to make it consistent with the knowledge about their health condition. But when the patient's issues were addressed in the high relational resistance condition, the participants may have misinterpreted the information as a way to put the patient in his/her place by the provider. According to Leon Festinger (Littlejohn & Foss, 1992), when dissonance is created in an individual, he/she could try to reduce the dissonance by misinterpreting the information. In other words, the participants in the high relational resistance may have misinterpreted the information and may not have attempted to reason through the information. On the other hand, in the MI condition, the provider did not impose his/her conclusions upon the patient and the patient was free to make his/her own decisions regarding behavior change. Thus, the participants in the MI condition may have interpreted the information shared by the provider as a way to help them think through and make their own decisions about engaging in behavior change.

Also, the participants may have deemed the provider as less trustworthy in the high relational resistance with addressing the patient's issues condition. The participants may not have trusted the provider because the provider was prescriptive and judgmental. The participants may have perceived the provider as being imposing and pushing his/her own goals upon the patient. In other words, the participants may not have viewed the provider as responding to the issues of the patient. But in the MI condition, the participants may have trusted the provider as the provider was not prescriptive and was nonjudgmental of the patient. The addressing of issues in the MI condition may not have been viewed as a way to impose the provider's goals upon the patient. Also, when the

provider in the MI condition explored the patient's view points after sharing information that addressed the patient's issues, the provider could have been viewed as having no agenda to steer the patient toward behavior change. In other words, the patient may not have experienced the pressure to change the behavior out of compulsion. Consequently, the provider in the MI condition could have been viewed as significantly more helpful and knowledgeable than the provider in the high relational resistance with addressing the patient's issues condition. Also, the participants may have viewed the patient in the MI condition significantly more likely to consider a behavior change than the patient in the high relational resistance with addressing the patient's issues condition.

Another explanation for an interaction effect in the MI condition is that perhaps the MI condition was more favorable for reasoning than the high relational resistance with addressing the patient's issues condition. The participants in the MI condition were probably better able to think through the information shared by the provider because the patient's issues were addressed without provoking the patient's defensive mechanism. This favorable climate created by the provider in the MI condition for the patient to think through the information could have resulted in the participants' evaluation of the provider as being more knowledgeable and helpful and the evaluation of the patient as more likely to consider a behavior change. In other words, addressing the patient's issues in the low relational resistance condition may have been crucial for making these three judgments, i.e., the patient's likelihood of a behavior change, the perceived medical knowledge of the physician and the perceived helpfulness of the physician. As a result, these three judgments may have revealed an interaction effect for relational by issue resistance.

The MI condition could have been crucial for the patient to engage in the process of reasoning through the information shared by the provider. The provider in the MI condition was not prescriptive and judgmental of the patient and according to Moyers and Rollnick (2002), the patient is more likely to experience resistance when the patient's freedom of choice is controlled by the provider. Thus, when the provider is prescriptive in the high relational resistance with addressing issues condition, the patient may experience loss of freedom. As a result of this defensiveness experienced by the patient in the high relational resistance with addressing issues condition, the patient may not have been able to constructively engage in the process of reasoning through the information shared by the provider. According to Gibb (1961), a defensive person finds it hard to focus on the what is being communicated to him/her while an individual who is non-defensive could better focus on what is being conveyed by the other person (Gibb, 1961)(Gibb, 1961)(Gibb, 1961)(Gibb, 1961)(Gibb, 1961)(Gibb, 1961)(Gibb, 1961)(Gibb, 1961). Consequently, the patient in the MI condition may have been free to engage in the process of reasoning because the provider was not prescriptive and did not limit the patient's freedom of choice. Thus, the defensiveness elicited by the provider in the high relational resistance condition may have put the participants on guard and reduced their possibility to engage in the reasoning process while the participants in the MI condition may have been able to engage in reasoning their way through the information shared by the provider before making their own conclusions about the perceived medical knowledge of the physician, the perceived helpfulness of the physician, and the patient's likelihood of a behavior change.

To summarize, there are many possible explanations for an interaction effect observed for the three judgments, i.e., the perceived likelihood of the patient considering a behavior change, the perceived helpfulness of the physician and the perceived medical knowledge of the physician. One explanation suggests that the participants gave greater priority to saving their face than to processing the information shared by the provider. The need for the participants to save their face may have resulted in their invalidating the significance of the information communicated by the provider in the high relational resistance with addressing the patient's issues condition. But in the MI condition, the participants may not have been concerned primarily about saving face for themselves and may not have invalidated the information shared by the provider. Also, in the MI condition the participants may not have misinterpreted the information when the provider offered information that directly addressed the patient's issues. On the other hand, the participants may have misinterpreted the information in the high relational resistance with addressing the patient's issues condition because the provider was judgmental, imposing and seemed uncaring of the patient. Thus, the information in the high relational resistance with addressing the patient's issues condition may have been perceived as a way to put the patient in his/her place. This misinterpreting of information may have resulted in the provider in the high relational resistance with addressing the patient's issues condition being viewed as less knowledgeable and helpful and the patient in the high relational resistance with addressing the patient's issues condition being viewed as less likely to engage in behavior change. Another explanation suggests that the participants may have had less trust in the provider in the high relational resistance with addressing the patient's issues condition. Therefore, the participants may have viewed the

provider as pushing his/her own goals rather than addressing the patient's issues. But in the MI condition (low relational resistance with addressing the patient's issues), the participants may have trusted the provider and may not have viewed the provider as pushing his/her own goals upon the patient. Consequently, the participants perceived the provider in the MI condition to be significantly more knowledgeable and helpful than the provider in the high relational resistance, addressing the patient's issues condition. Also, the participants' perceived the patient in the MI condition as more likely to engage in behavior change than the patient in high relational resistance, addressing issues condition. Another explanation for an interaction effect focuses on the participants' ability to reason through the information shared by the provider before making their own decisions about engaging in behavior change. Participants in the high relational resistance with addressing issues condition may have experienced defensiveness because there was little respect for the patient's face, i.e., the provider was prescriptive and judgmental with the patient. When the patient's issues were judged and when the patient was told what to do, the participants may not have been able to think through the information shared by the provider because their defensive mechanism may have become active. On the other hand, in the MI condition, participants' defenses were reduced and they may have been in a better position to reason through the information before evaluating the provider as knowledgeable and helpful, and the patient's likelihood of behavior change. As a result the participants in MI condition may have perceived the provider as more helpful and knowledgeable and the patient as more likely to consider a behavior change.

Thus, in the MI condition, the provider's not creating face loss for the patient and offering information that is directly relevant to the patient's issues helped in creating trust

in the provider. As a result the participants trusted the provider and the information shared by the provider. Also, when the provider was not prescriptive and judgmental, the participants may have been able to engage in reasoning through the information, which may have further reinforced their trust in the provider. Consequently, in the MI condition, the provider was perceived as knowledgeable and helpful and the patient was perceived as likely to engage in behavior change. This addressing of relational and issue resistance simultaneously by the provider in the MI condition may have resulted in the synergistic interaction effect.

Thus, it is important for the provider to address the patient's relational and issue resistance simultaneously so that:

- The patient does not have to worry about saving his/her face when the provider addresses the patient's issues.
- The patient trusts the provider and does not view him/her as imposing his/her own goals upon the patient. Rather the patient would view the provider as helping him/her to reach his/her own goals.
- The patient's defensive mechanisms remain unprovoked and consequently, the patient could engage in the reasoning process before making his/her own decisions.

Hence for the preceding reasons, it is essential for the provider to address the patient's relational and issue resistance together in order to produce a synergistic interaction effect as observed in the MI condition.

Thus, the results of the multivariate and univariate analysis revealed that participants' judgments of the provider and the consultation were based on addressing

two dimensions of resistance in the patient, i.e., addressing the patient's relational resistance and addressing the patient's issue resistance. Addressing relational resistance involves the provider's being respectful of the patient's autonomy face (being not prescriptive), competency face (being nonjudgmental), fellowship face (being caring and concerned for the patient) and being supportive of the patient's positive health behaviors. The results of this study indicated that participants judged the provider in the low relational resistance condition significantly more accepting/respectful of the patient, knowledgeable and helpful than the high relational resistance condition and judged the patient in the low relational resistance condition significantly more likely to see the physician again and more likely to consider a behavior change than the high relational resistance condition. The strikingly large differences between the low and the high relational resistance conditions is indicative of the importance of the dimension of addressing the patient's relational resistance in counseling the patient in MI.

The second dimension is addressing the patient's issue resistance that stresses the need for the provider to address the patient's issues with targeted health information. The provider's addressing the patient's issues could help the patient reason his/her way through the information that in turn could result in a positive shift in the patient's decisional balance. A positive shift in the patient's decisional balance may help the patient make a decision in favor of constructive behavior change. The results of this study indicated that participants judged the provider who addressed the patient's issues significantly more accepting/respectful of the patient, knowledgeable and helpful than the provider who either ignored or reflected but not addressed the patient's issues. Also, the participants judged the patient whose issues were addressed to be significantly more

likely to see the physician again and to consider a behavior change than the patient whose issues were either ignored or reflected but not addressed by the provider. The marked differences in effect sizes for the difference between addressing the patient's issues and ignoring the patient's issues are further indicative of the importance of the dimension of addressing the patient's issues in counseling the patient in MI.

Thus, participants' responses to counseling in MI vary along addressing the two dimensions of resistance in the patient, i.e., addressing the relational and the issue resistance. Furthermore, the significant interaction effect for relational by issue resistance for the MI condition is indicative of the strong synergy created as a result of the provider's addressing the relational resistance and the issue resistance in the patient concurrently. The results of this study revealed a powerful synergistic interaction effect in the MI condition for the three judgments, i.e., the patient's likelihood of behavior change, the perceived medical knowledge of the provider and the perceived helpfulness of the provider. Also, the large effect sizes for the differences between the MI condition and the other five conditions are indicative of the strong synergistic effect created in the MI condition. This further provides initial validation that the two dimensions of addressing resistance interact with each other to create a synergy. Thus, the participants' responses to counseling in MI vary along two synergistic dimensions of addressing resistance in the patient.

Next, the implications of the two dimensional theory of MI for researchers and practitioners in the field of MI are discussed.



## **Implications of the Two Dimensional Theory of MI**

**MI assessment scales.** The commonly used scales for assessing MI fidelity are based on provider's use of individual MI skills and their demonstration of MI spirit. For example, motivational interviewing skill code (MISC), motivational interviewing treatment integrity code (MITI) (Moyers, Martin et al., 2005) that are some of the commonly used MI assessment scales rate provider's MI spirit on a global level. The provider's demonstration of MI spirit such as empathy, autonomy, collaboration, etc. are rated on a global level. However, these scales rate the provider's use of MI skills based on behavioral counts. The behavioral counts involve counting the frequency at which a provider asks an open-ended question or reflects the patient's responses or affirms the patient's positive steps toward behavior change, etc. Although the assessment of provider's demonstration of MI spirit is crucial, the excessive focus of MI assessment scales like MISC or MITI on the simple presence or absence of MI skills may not be quite helpful. These scales assess the provider's effectiveness in using MI skills based on the number of times the provider used a MI skill or a MI consistent method. For example these scales count the frequency at which the provider asked an open-ended question or took permission from the patient before offering advice to the patient. However, the frequency of use of MI skills may not give a true indication of the provider's effectiveness in implementing MI skills or MI consistent methods. For example a patient may ask an open-ended question and elicit resistance from the patient. The following example may illustrate this further:

- 1 Patient: I really don't feel any better even after taking my medicine. I continue to have hard time sleeping at night due to heart burn attacks. I doubt if this medicine really works.
- 2 Provider: What is your understanding of your medicine?
- 3 Patient: Well... it should reduce my heartburn.

In the preceding example, although the provider asked an open-ended question, it was implicit from the question that the patient lacked some understanding of the medicine. In other words, the provider's question indicated something lacking in the patient's understanding. Although in the previous example, the provider used a MI consistent method or a MI skill but in turn elicited resistance from the patient. Hence the frequency of use of a MI consistent method or MI skills may not always give a true indication whether the skill was used in the right context and whether the use of skills helped in engaging the patient's reasoning about the need for a behavior change.

Moyers and colleagues (2005) have reported that even MI inconsistent behaviors predicted strong outcomes when the provider demonstrated MI spirit. Also, this study by Moyers and colleagues reported that provider's use of MI consistent or inconsistent methods was not predictive of patient outcomes. This finding is not unexpected given that a provider's intent behind the MI inconsistent method could influence the patient outcome. For example, a provider could respond to a patient with high blood pressure by saying "You need you to take your medicine as prescribed. I am worried that not taking your medicine could put you at risk of a stroke". Although the provider was using a MI inconsistent method by imposing the recommendation on the patient, the patient may still see that the provider's motive was to save the patient from the risk of suffering a stroke

and not embarrass the patient. Thus, the MI assessment scale's focus on the behavioral counts, i.e., the frequency of use of MI consistent or inconsistent methods may be less appropriate in assessing the effective implementation of MI.

Also, most MI scales including MISC, MITI, global rating of motivational interviewing therapist (GROMIT) (CASAA, 2011), and motivational interviewing sequential code for observing process exchanges (MI-SCOPE) (CASAA, 2011) do not take into account whether or not the provider addresses the patient's issues/concerns. The scale that was found to take into account the addressing of the patient's issues/concerns was the behavioral change counseling index (BECCI). Most of the assessment scales might be overlooking the need for the provider to address the patient's issues because it could seem obvious that a provider who uses MI skills would reflect the patient's issues and that the reflection of the issues would be followed by addressing those issues. However, Villaume and colleagues (2009) pointed out that the provider's reflections often miss the patient's issues and often focus on surface details of the patient's responses. Also, it was reported that even when the provider reflects the patient's issues, he/she often fails to address those issues. Therefore, it is important for the MI assessment scales to include items in the scale that evaluate the provider's addressing of the patient's issues with relevant and targeted information. This dissertation, in providing preliminary validation for the two dimensional theory of MI, has shown that the main effect for addressing issues is very high for the patient's likelihood of behavior change. The large effect size ( $d = .98$ ) for the difference between reflecting and addressing issues and ignoring issues for the judgment of the patient's likelihood of behavior change is indicative of the importance of incorporating item(s) in the MI assessment scales that

capture how well the provider has addressed the patient's issues. Also, the difference between reflecting and addressing issues and only reflecting issues for the judgment of the patient's likelihood of behavior change showed a large effect size ( $d = .77$ ).

Therefore, it is not sufficient for the provider to only reflect the patient's issues but the reflections should be followed by addressing those issues with targeted information so that the patient's likelihood of behavior change is markedly increased.

Most importantly, the MI assessment scales including MISC, MITI, GROMIT and MI-SCOPE do not take into account the synergistic interaction effect due to addressing the two dimensions of resistance in the patient. For the patient's likelihood of behavior change, the synergistic interaction effect ( $d = .88$ ) is far greater than the main effects for addressing the relational resistance and the issue resistance. Therefore, the MI assessment scales should take into account the synergistic interaction effect. The interaction effect could be obtained by multiplying the main effects for addressing the relational resistance and the issue resistance. The regression equation will be:

$$Y = b_1X_1 + b_2X_2 + b_3X_1 * X_2$$

where:

$X_1$  represents the main effect for addressing the relational resistance,

$X_2$  represents the main effect for addressing the issue resistance, and

$X_1 * X_2$  represents the interaction term.

Furthermore, MI scales like MISC and MITI give summary scores that are indicative of the quality of MI delivered by the provider. These summary scores include: ratio of reflections to questions, percent open questions, percent complex reflections, percent MI-consistent responses, etc. The summary scores however may not give a true

indication of the provider's ability to effectively use MI skills. For example, a provider may use a MI consistent response several times such as supporting the patient's self-efficacy but may fail to respond to the patient's issues. The following example illustrates how although the provider may use a MI consistent response but not respond to the patient's issues:

- 1      Patient:      I am surprised that my blood pressure is still high because I have been watching my diet and working out at the gym regularly. I am surprised that it's still high.
  
- 2      Provider:      That's really great. Your exercise habits and watching your diet will definitely help you manage your illness. Tell me more about your exercise habits.

In the preceding example, the provider used an MI consistent response but completely overlooked the patient's experience of dissonance. The patient was experiencing dissonance which was evident from her expression of surprise because she had been putting a lot of effort in managing her blood pressure. Thus, the example illustrates how the MI assessment scales that focus on percent MI consistent responses may overlook whether the provider responses addressed the patient's issues.

Consequently, the scores of the assessment scales may not give an indication of how effectively the provider addressed the patient's issues. Probably summary scores could be helpful in assessing trainees who had just learnt to use MI skills and are trying to avoid MI inconsistent methods such as warning, disagreeing, etc. but it may not be as helpful in measuring provider's effectiveness in implementing MI because the effective implementation of MI may not be based on the counts of skills. Instead the effectiveness

of MI depends upon how the provider's use of skills helped in addressing the patient's relational resistance and issue resistance and most importantly whether these two dimensions of resistance were addressed concurrently to create a synergistic interaction effect in increasing the patient's likelihood of behavior change.

This study substantiating the two dimensional theory of MI has indicated that the patient's perceived likelihood of behavior change is greatest when in the MI condition (low relational resistance with addressing issues condition). Therefore, this study suggests that the provider should be assessed on two dimensions, i.e., addressing relational resistance and addressing issue resistance. Since being respectful of the patient's face indicates only one dimension of provider's skillfulness in MI but gives little indication about the other dimension, i.e., how well the provider elicited and addressed the patient's issue resistance, these two dimensions should be scored separately. Consequently, there should be two scores, i.e., one score indicating how well the provider respected the patient's face and the second score indicating how effectively the provider has addressed the patient's issues. In addition there should be a third score for the interaction effect for addressing relational resistance by issue resistance. Although BECCI does focus on whether or not the provider has addressed the patient's issues, it finally evaluates the provider on one final score. However, this study revealed that the patient's likelihood of behavior change is based on the provider's effectiveness on two synergistic dimensions. This understanding of the two dimensional nature of the effectiveness of MI calls for developing a MI scale that has two dimensional approach to assessment of MI fidelity.

**MI training.** The MI training could be divided into two phases. In the first phase of MI training, the trainer could teach the provider how to be respectful of the patient's face. The essentiality of MI spirit, i.e., evocation, collaboration and autonomy should be highlighted as the skills could be rendered ineffective if the MI spirit is absent. The importance of the provider to respect the patient's face by being nonjudgmental and not prescriptive should be stressed. Also, being caring and the need for supporting self-efficacy should be emphasized in the very beginning of the training.

The major focus of the second phase of MI training could be on eliciting and addressing the patient's issues. This would require teaching the provider some of the basic MI skills including empathizing with the patient, developing discrepancy in the patient, rolling with the patient's resistance, asking open ended questions, etc. These skills would help elicit the key issues that affect the patient's ability to engage in behavior change. The MI skills should be used to elicit the issues that affect the patient's ability to engage in behavior change. Empathy as a skill may be very helpful in eliciting the patient's key issues. Once the issues have been empathized with, the provider could ask permission to provide information that addresses the patient's issues. The provider could be taught to be precise and specific in responding to the patient's issues with information that directly answers the patient's issues. Most importantly, the provider should be taught how to be respectful of the patient's face while offering information that addresses the patient's issues in order to create a synergy in increasing the patient's likelihood of behavior change. Especially when addressing issues requires changing the patient's perspective or correcting the patient's misunderstanding about illnesses or its treatment, the provider should be taught not to create face loss for the patient.

Additionally, the provider should be asked to elicit the patient's reactions to the information offered by the provider. The provider should leave the responsibility of making the conclusion on the patient. Thus, the provider's role is to offer information and help the patient to think through the information by asking the patient to make the conclusion about considering a behavior change. This would provide an opportunity to the patient to think through the information and engage in the process of reasoning. Thus, the MI training should emphasize that provider does not make the final conclusion for the patient about behavior change unless asked to do so by the patient.

Also, in the course of MI training, it should be made clear that learning MI is not about the expertise in using a set of skills. Villaume and colleagues (2009) have suggested that provider often gets stuck in the course of counseling after using specific MI skills because he/she loses sight of the patient's issues in his/her preoccupation with using MI skills. Unfortunately, many of the assessment tools also evaluate provider skillfulness in MI based on behavior counts and consequently provider focuses on opportunities to apply MI skills instead of focusing on the patient's issues. Thus, the focus of the training should be on the patient's issues and more importantly the demonstration of the MI spirit.

**Modified theory of MI.** The findings of this study could be used to propose a more adequate theory of MI that explains how MI counseling leads to change talk and behavior change in the patient. The spirit of MI comprising the autonomy, evocation, collaboration, acceptance (nonjudgmental stance), empathic understanding could help the provider to be respectful of the patient's face. While MI skills including empathy could help address the patient's issues.



It may be noted that empathizing with the patient also helps explore the patient's issues that affect his/her ability to consider a behavior change. Thus, the provider's empathic understanding of the patient not only demonstrates respect for the patient's face but it also helps explore the patient's issues. As the provider empathizes with the patient, the more the provider gains insight of the patient's perceptions of his/her illnesses and modes to treat those illnesses. Thus, empathy helps in both addressing the patient's relational resistance and addressing the issue resistance.

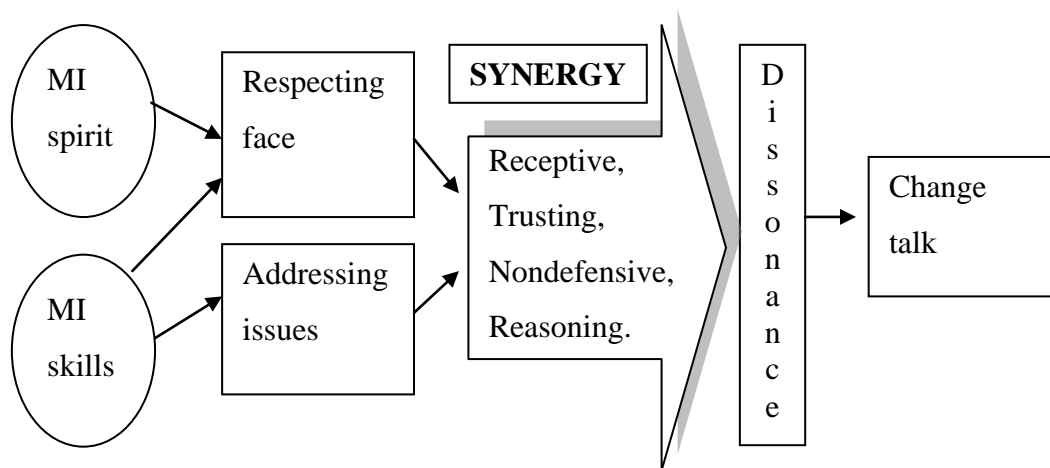
When the patient's issues are addressed while being respectful of the patient's face, there is a synergistic interaction effect for addressing the relational resistance and the issue resistance that manifests as increased patient's likelihood of behavior change. The mechanism behind this synergistic effect is hypothesized to be a result of:

- The patient's increased receptivity to the provider who gives priority to address the patient's issues than talking about what is important for the provider. Otherwise the patient may remain preoccupied with his/her issues when the provider is sharing information that is not related to the patient's issues.
- The patient's increased trust in the provider who addresses the patient's issues without being prescriptive. The addressing of the issues is followed by the provider's eliciting the patient's reactions. Thus, the provider is helping the patient to achieve his/her goals than imposing the provider's goals upon the patient.
- The patient does not have to worry about saving his/her face when the provider addresses the patient's issues.

- The patient's defensive mechanism being unprovoked, the patient could engage in the reasoning process before making his/her own decisions. The patient could consider the pros and cons of behavior change and is not under any external pressure to engage in behavior change.

When there is no external pressure to change, the patient experiences greater internal dissonance if he/she does not consider a behavior change. The inconsistency between the patient's current health behavior and the knowledge of the consequences of the behavior on his/her health could leave the patient dissonant.

*Figure 10. Modified theory of MI*



**Reducing the wide variability of MI studies.** As reported in chapter II, a possible reason for the wide variability in the results of the studies on the effectiveness of MI might be an inadequate theory of MI. On one extreme, there are studies that show MI to be exceptionally more effective than the comparison group, while there are studies that show MI to be not significantly more effective than the comparison groups, and on the other extreme, there are also studies that show MI to be significantly less effective than the comparison group. This wide gap in the results of MI studies might be bridged by

separating studies that implemented MI effectively from those that didn't implement MI effectively. The effective implementation of MI would mean that the provider addressed the patient's relational and issue resistance to create a synergistic effect on enhancing the patient's likelihood of behavior change. Thus, separating studies that implemented MI effectively from those that didn't implement MI effectively would require coding the provider behavior. The provider behavior would have to be coded on the two dimensions of addressing resistance, i.e., addressing the patient's relational resistance and addressing the patient's issue resistance. Thus, the evaluation of how well MI was implemented could take into account the provider's effectiveness in addressing the two dimensions of resistance simultaneously in the patient to create a synergistic interaction effect that is greater than the simple sum of the main effects for addressing the relational and the issue resistance.

In order to assess the provider's effectiveness in addressing the two dimensions of resistance in the patient simultaneously to create a synergy, the studies on MI could be evaluated first for the extent to which the provider addressed the patient's relational resistance. The provider could address the patient's relational resistance in two ways, i.e., the provider could save face for the patient or the provider could lose face for the patient.

The provider could save face for the patient by:

- Being nonjudgmental of the patient and not judging the patient's perspectives about his/her illnesses or managing his/her illnesses,
- Being not prescriptive and thereby not telling what the patient should be doing,
- Being caring and concerned for the patient and expressing willingness to help the patient in the future, and

- Supporting the patient's positive health behaviors.

On the other hand, the provider could lose face for the patient by being judgmental of the patient's perspectives, being prescriptive and telling the patient what he/she ought to do, thereby deciding what is best for the patient, by being unconcerned about the patient and by not supporting the positive steps the patient has taken towards managing his/her illnesses. Thus, based on the characteristics of the provider responses to the patient, the level at which the provider addressed the patient's relational resistance could be identified.

Next the extent to which the provider addressed the patient's issue resistance could be evaluated. The provider could address the patient's issue resistance on any of the three different levels, i.e., the provider could ignore the patient's issues or the provider could reflect the patient's issues but not address the issues, or the provider could both reflect and address the patient's issues. Thus, based on the provider responses, the level at which the provider addressed the patient's issue resistance could be marked.

The next step would be to compute the interaction effect for the provider's addressing the patient's relational resistance and addressing of the patient's issue resistance. The interaction effect for relational by issue resistance could be computed by multiplying the scores for the provider's addressing of the patient's relational resistance and the score for addressing the issue resistance. The product of these two scores will give the interaction effect for the two dimensions of addressing resistance. Finally, the patient's likelihood of behavior change could be predicted by incorporating the scores for the following three variables into the regression equation.

1. The main effect for addressing the relational resistance,

2. The main effect for addressing the issue resistance, and
3. The interaction effect for relational by issue resistance.

Thus, there will be three independent variables in the regression equation in predicting the one dependent variable, which could be the patient's engagement in the target behavior.

The preceding section discussed the implications of the two dimensional theory of MI for researchers and practitioners in the field of MI. Next, the strengths and weaknesses of the study are discussed.

### **Strengths of the Study**

**Controlled study design.** The message effects research method allowed for the design of a well-controlled study where the manipulation of the two independent variables could be effectively controlled unlike an outcome based study. In an outcome based study it would have been hard to precisely manipulate the independent variables. For example, it could have been hard to ensure the operationalization of the cells of the study design in an intervention study with the real patient and the provider.

In this study the providers were fully crossed and consequently each cell of the study design had two providers counseling the patient. Also, the addictive conditions and the disease conditions were fully crossed; thereby each cell of the study design received counseling for an addictive condition and a disease condition. Also, it was possible to limit the duration of the interaction in this study. Moreover, it was also possible to maintain uniformity in the number of issues expressed by the patient across all the cells of the study design.

The within subject design ensured that each cell had the same number of participants and therefore ensured a balanced design. Also, the within-subject design allowed for an efficient use of the study participants. Consequently, the power of the study was high and therefore it would not have masked a real treatment effect. Also, the data collection process ensured that each participant watched the counseling videos on individual computers and thereby eliminated any chances of one participant influencing the other participants' responses to the stimulus videos.

**Controlled for order effects.** The authorware program also randomized the order in which the 12 videos were displayed for each of the study participant, thereby controlling for any order effects. Additionally, the questions that were displayed to the study participants to capture their reactions to the videos were randomized for each individual participant, which also controls for any order effects.

**No missing data.** The authorware program was designed such that it saved the data only when the participants had rated all of the 12 videos and had completed the study. Thus, there was no missing data for any participants in this study.

**Less likelihood of random selection of answers.** The participants were instructed by the authorware program that each question will be displayed for a minimum amount of time and that the participants can move on to the next question only when they have spent the minimum time required for each question. Also, some questions were written in the reverse order to assess for random selection of the answers to the questions.

### **Limitations of the Study**

One major limitation of this study was that the study participants were not actual patients. It is likely that actual patients may respond differently to the stimulus videos

than the study participants. Also, actual patients may find it more difficult to consider a behavior change than the participants in this study. Actual patients may experience greater degree of resistance to consider a behavior change than the study participants. Moreover, the majority of the study participants being students from PYPC 5010 course, they may be more likely to advocate for a health behavior change like taking medications. However, it may be noted that these students from PYPC 5010 course participated in this study on the first day of their class in Auburn and therefore they maybe less likely to put themselves in the shoes of the provider. But, it is likely that those student pharmacists who had prior experience working in pharmacies could identify with the provider to an extent.

Also, the study participants may not necessarily experience the same degree of face loss as actual patients may experience during counseling. Actual patients may experience greater degree of face loss than the study participants because their own face is being threatened. The participants' involvement in watching the video even if high may not be the same as actual patients. Thus, it is likely that the findings for the difference between the low and the high relational resistance conditions could have been even greater than what was found in this study.

Additionally, actual patient could be more influenced by provider's addressing the patient's issues than the study participants. The study participants may not necessarily identify with the patient's issues in the stimulus videos as much as the real patients. Actual patients may have been more grateful to the provider who took the time to reflect and address their issues than the study participants who may not necessarily identify with those issues to the extent an actual patient would identify with his/her issues.

Also, the study settings and the patient-provider interactions in the videos were simulated and therefore there is a need for future studies to examine whether these findings apply to video recordings of actual healthcare interactions between a physician and a patient. It is very likely that a video recorded interaction of a real patient-provider interaction would have elicited stronger reactions from the study participants. The watching of real video recorded events probably elicits more intense reactions from viewers than watching events that are simulated. Therefore, future studies could consider showing videos of real world healthcare interactions that operationalize the cells of this study design. However, it may be noted that the participants in this study were not told whether the interactions between the provider and the patient were simulated.

Also, the stimulus videos portrayed the provider as a physician. Although it is likely that the participants' responses to the stimulus videos would have been the same for other healthcare providers such as pharmacists, nurses, counselors, social work case managers, etc., there is a need for future studies to investigate any differences in people's responsiveness to the two dimensions of addressing resistance in the patient.

Another possible limitation of this study is that the students enrolled for the PYPC 5010 course probably could identify themselves with the provider given that some students who join the pharmacy school have prior experience working in the pharmacy. This could make them more or less sensitive to the need for respecting the patient's face.

Additionally, the variability in the scenarios could influence the participants' judgments. Although the addictive and the disease conditions were crossed across the cells of the study design, the addictive condition and the disease condition were not the same in all the cells. The cells 1, 4 and 5 had drinking and high blood pressure as the



addictive condition and the disease condition respectively. On the other hand, the cells 2, 3 and 6 had smoking and high cholesterol as the addictive and disease conditions respectively. The purpose for not using the same disease condition and addictive condition across all the cells of the study design was to reduce fatigue in the study participants as a result of watching the same disease and addictive conditions in all the cells of the study design. The variability in the disease and addictive conditions was included to increase the validity of the study. However, there is a possibility that the participants' judgments about the physician and the patient in the videos could have differed because of the differences in how they perceive smoking and drinking behaviors. Perhaps, drinking behavior could be viewed as more difficult to change than smoking and as a result the participants may have viewed the patient who drinks as less likely to consider a behavior change.

**Convenience sample.** This study used a convenience sample of students who were registered for the COMM 1000 course (communication course on public speaking) and PYPC 5010 (Patient centered skills course). This sample could have been relatively more sensitive to the subtle variations in communication strategies between the cells of the study design compared to the general population. Thus, it is possible that these participants may have been more sensitive to how providers were communicating with the patient in the videos. Although majority of the participants from PYPC 5010 course had just enrolled in the pharmacy school, their inclination for studying pharmacy could have made them more inclined to the counseling skills of the provider. Also, these participants may have been more sensitive to the provider's addressing the patient's

issues with medical information given their interest in pharmacy program than the general population.

Similarly, the participants enrolled for the COMM 1000 course could be more sensitive to the communication strategies used by the provider given their interest in learning effective communication skills. Also, these participants were mid-way through their course and therefore they may have been sensitive to the subtle variations in communication strategies used by the provider in the stimulus videos than the general population.

Also, ethnic diversity of participants was not obtained in this study sample. Future studies should examine the effectiveness of the two dimensional approach to counseling with diverse ethnic populations.

Additionally, all the participants in this sample were young as the sample was comprised of students. The responsiveness to the two dimensions of addressing the patient's resistance might differ across age groups and future studies should investigate whether age predicts responsiveness to the two dimensions. It is likely that middle aged and elderly populations may respond differently to the provider's addressing the patient's relational resistance or the issue resistance. For example, the extent of face loss experienced by people may vary across age groups. Perhaps, there could be less face loss experienced as age progresses. Also, it is not unlikely that the study participants may have responded differently if the patient in the stimulus videos were of an older age group instead of a similar age group used in this study. Also, the participants may have responded differently if the providers in the stimulus videos were of a similar age group as that of the study participants. It is likely that the study participants experienced less

face loss because the patients in the stimulus videos were in their 20s and the providers were in their late 50s.

Furthermore, both physicians in these role played videos were males and it is possible that participants may have responded somewhat differently had it been female physicians. Future studies should examine if gender could affect participants' evaluations of the providers for the five dependent variables.

**Fatigue.** The study participants watched the videos for the duration ranging between 45 minutes to an hour. The watching of the videos could have resulted in fatigue that could have affected their responsiveness to the two dimensions. Future studies may consider reducing the number of items on the dependent measures or shortening the length of the stimulus videos or both.

**Generalizability.** The results of this study may not be generalized to the general population given that the participants were not representative of the general population in terms of factors like age, ethnicity, etc. Therefore, it is possible that the responsiveness to the two dimensions may differ for the general population. This sample participants' responses indicate two significant main effects and a significant interaction effect. As this sample support a two dimensional approach to MI counseling, it is always warranted to consider these two dimensions of resistance while counseling the patient using MI. Even if there are people who do not respond to the two dimensions, this sample is sufficient to suggest that a two dimensional approach to counseling should be considered. It may not reduce the likelihood of behavior change in the patient if providers address a dimension to which the patient is not responsive but based on the findings of this study it is possible that the patient's likelihood of change is reduced if providers focus on only one

dimension. However, replication is needed to see whether the same pattern of responses to the two dimensions exist in the general population.

The preceding section discussed the strengths and weaknesses of the study. Next, the directions for future research are discussed.

### **Future Research Ideas**

This study offered initial validation for the proposition that a provider's effectiveness in increasing the patient's likelihood of behavior change is contingent upon his/her ability to address the two types of resistance in the patient. The use of message effects research was a preliminary step in supporting the two dimensional theory of MI. The suggestions for future research for further validating the two dimensional theory of MI and for refining the theory and practice of MI are as follows.

Future studies could use a regression based outcome study for naturally occurring interactions to examine the predictive power of the main effects of addressing the relational and the issue resistance and the predictive power of the interaction effect for the relational x issue resistance. Thus, there will be three independent variables, namely:

1. The main effect for the relational resistance.
2. The main effect for the issue resistance.
3. The interaction effect for relational x issue resistance.

The dependent variable for this outcome based study could be a clinical outcome or behavioral outcome. For example, the patient's blood pressure could be a clinical outcome while quitting smoking could be a behavioral outcome. This study could consider videotaping naturally occurring counseling sessions and coding them for the level at which the provider addresses the patient's relational and issue resistance. For

example, the videotapes could be analyzed for the level at which the provider addressed the patient's relational resistance in the patient. The provider could be respectful of the patient's face, which would be the low relational resistance condition or the provider could show no respect for the patient's face, which would be the high relational resistance condition. Similarly, the level at which the provider addressed the patient's issues could be examined. The provider could ignore the patient's issues or the provider could reflect the patient's issues but not address the issues or the provider could both reflect and address the patient's issues. Thus, it could be known at what level the provider addressed the patient's relational and the issue resistance. The main effect for the relational and the issue resistance and the interaction effect could then be incorporated into the regression equation. Thus, there will be three independent variables and the predictive power for each of the three independent variables could be investigated.

Future studies could also assess the effectiveness of an advanced MI training on the provider's effectiveness in MI. This advanced MI training would be an addition to the usual training in MI spirit and MI skills. The advanced MI training could focus exclusively on addressing the two dimensions of resistance in the patient, i.e., the relational and the issue resistance. This study would be an outcome based intervention study using a pretest-posttest design. As the purpose of this outcome based study is to examine the effectiveness of an advanced MI training in addressing relational and issue resistance, there will be two phases of MI training. The first phase of MI training could focus on teaching trainees how to use MI skills and MI spirit. The duration of the first phase of MI training could be about 20 hours. The second phase of advanced training in MI could be offered one month post the first phase of training. Thus, there would be a

gap of one month between the first and the second phases of MI training. The second level of MI training could focus specifically on addressing the relational and the issue resistance in the patient. In other words, the provider would be trained in exploring and addressing the patient's issues while being respectful of the patient's face. The duration of this second phase of advanced MI training could be about 10 hours. The outcome variable for this study could be the provider's ability to elicit commitment change talk from the patient. The outcome variable, which is the eliciting of commitment change talk from the patient, could be assessed by coding sample video tapes of actual counseling sessions of the trainee/provider in the real world practice settings. The sample videotapes of actual counseling sessions could be obtained from the provider at three different points in time; one at baseline, the second after the first phase of MI training, and finally following the second phase of MI training. The differences in the provider's ability to elicit commitment change talk from the patient could then be analyzed for the three different time points.

Follow-up studies could also see if there are differences between males and females in terms of their responsiveness to addressing the two dimensions of resistance in the patient, i.e., the relational and the issue dimensions.

Additionally, follow-up studies could also examine if there are differences between people of different age groups in their responsiveness to addressing the two dimensions of resistance in the patient.

Also, more studies are needed to see if the responsiveness to the two dimensions of resistance found in this study sample could also be observed in samples comprising ethnic minorities.

There is also potential for studies that could discover ways to help healthcare providers deal with the patient's resistance to engage in behavior change. MI theory suggests that a patient's resistance to engage in behavior change should be responded to with empathy by the provider. However, there is a need for examining what is happening in the provider's mind when they deal with a resistant patient. It is possible that the provider may have to manage his/her own experience of defensiveness before understanding the patient's resistance. Thus, it may be essential for MI training to teach the provider to manage his/her own defensiveness when dealing with a resistant patient. Hence, future studies could explore defensiveness experienced by the provider in understanding and responding to a resistant patient. Also, the methods to enable the provider to manage his/her own defensive experiences could be studied.

It may be noted that the preceding suggestions for future research did not consider an experimental study that requires manipulation of the provider's responses to the patient. The manipulation of relational resistance and addressing of issue resistance conditions was not considered due to ethical and practical reasons. The manipulation of the provider responses to operationalize the independent message variables will need that some patients be treated in a manner that is known to be extremely ineffective. For example, the manipulation of the provider responses may require the patient's face to be not respected by the provider. Also, the patient's concerns/issues would have to be deliberately disregarded by the provider. This need to intentionally disregard the patient's issues or not respecting the patient's face is unethical and is likely to put some of the patients at a state of psychological distress. Also, ignoring the patient's concerns/issues could be even harmful to the patient. Also, the provider could not be blinded. The

provider would be aware that he/she is offering an intervention that is evidently undermining the patient's ability to consider a behavior change and could potentially harm the patient. Also, it is hard for a provider who is used to responding in MI style to change to a confrontational or judgmental style. It could be difficult for a provider to switch from MI responses to a non-MI response in order to operationalize the cells of the study design. This effort on the part of a MI provider to respond in a manner that causes face loss for the patient and to ignore the patient's issues may take away the naturalness of the interaction. The MI provider responding in a manner just opposite of MI could result in threatening the validity of the intervention because the affect and the verbal responses of the provider may be incongruent with each other.

Thus, there are many ethical issues concerning the manipulation of the two independent variables, i.e., addressing the relational resistance and addressing the issue resistance in the patient as discussed earlier. However, one such study that would require manipulation of the two independent variables is discussed next.

This study on validating the two dimensional theory of MI operationalized the MI cell (sixth cell of this 2x3 study design) such that the provider did not tell the patient what the conclusion ought to be. In other words, it was left to the patient to decide the conclusions based on their understanding of the information conveyed by the provider. The conclusion is the final claim made by the provider, which is marked in italics in the next example "As your blood pressure is still very high putting you at a risk of a heart attack or a stroke, *I would recommend that you to take your medicine as prescribed*". In this study validating the two dimensional theory of MI, the provider did not make any conclusions in the MI cell. An additional possibility for future research is to examine



whether there is a significant difference in the patient's ability to comprehend the provider's logic on two different conditions; in one condition the provider is judgmental of the patient while in other condition the provider is nonjudgmental of the patient. It is likely that when the provider is judgmental, the patient is not able to comprehend the provider's logic while when the provider is nonjudgmental, the patient is more easily able to comprehend the provider's logic. In order to conduct this study, the study participants could be assigned to two groups, i.e., one group receiving a counseling session at low relational resistance condition while the other group receiving a counseling session at the high relational resistance condition. In both the groups the provider would share the logic with the patient. In other words, in both the groups, the provider would reason through to reach the final conclusion. But the only difference between the two groups would be that in one group (low relational resistance condition) the provider is nonjudgmental while in other group (high relational resistance condition), the provider is judgmental of the patient. After the patient would receive the counseling from the provider regardless of the group he/she is assigned to (high or low relational resistance), the patient could be interviewed to assess his/her understanding of the logic shared by the provider. It is proposed that there would be a significant difference in the patient's ability to comprehend the provider's logic between the two conditions. Specifically, the patient in the nonjudgmental condition would be significantly better able to comprehend the provider's logic than the patient in the judgmental condition.

Also, future research could consider examining whether the stimulus videos operationalizing the different cells of this study design arouse different reactions/responses in the minds of people or patients. The stimulus videos would be

simulated counseling sessions of a provider counseling a standardized patient. The reason for suggesting videos of simulated patient-provider interactions is to allow for precise operationalization of the cells of the study design that are combinations of the different levels of relational resistance and issue resistance. In an actual interaction, it could be difficult to ensure the operationalization of the cells of the design although actual interactions could be more natural than simulated videos. The participants in this study could be those who are actual patients with the same illness as is being depicted in the stimulus videos. For example, videos involving the patient with high cholesterol could be shown to a patient with high cholesterol. Perhaps, an actual patient could better identify with the scenario depicted in the stimulus videos than participants who do not have the same illness. The study participants' responses to the stimulus videos could be measured using functional magnetic resonance imaging (fMRI) by studying the activation of the various centers of the brain. It is hypothesized that participants would experience defensiveness in the high relational resistance condition. Most importantly, it is proposed that the MI cell (low relational resistance with addressing issues condition) will be significantly distinct with a synergistic interaction effect. There will be a synergistic interaction effect between the low relational resistance and addressing issues. As a result the participants will be more likely to consider a behavior change. The MI cell would indicate activation of the brain centers that are responsible for reasoning and problem solving. Also, the MI cell would show reduced defensiveness, greater degree of attentiveness to the information shared by the provider and trust in the provider. In contrast, the cell for the high relational resistance with addressing issues would indicate significantly greater levels of defensiveness and also significantly less activation of brain

centers that are responsible for reasoning. Additionally, the participants in the MI condition are likely to experience dissonance if their current health behaviors are inconsistent with the knowledge that they gained from the information shared by the provider.

## **Conclusion**

In conclusion, this study used the methodology of message effects research to provide a preliminary validation of the proposition that MI is best explained by a two dimensional theory. Furthermore, the findings indicated that these two dimensions interact with each other to create a powerful synergy. Thus, these findings revealed that the effectiveness of MI varies along two synergistic dimensions of addressing resistance, i.e., addressing relational and issue resistance in the patient. The synergistic interaction effect for apparently the most important judgment, i.e., the patient's likelihood of behavior change, showed an exceptionally strong effect size. The synergy for the patient's likelihood of behavior change far exceeded the simple sum of the main effects for addressing the patient's relational resistance by respecting the patient's face and for addressing issue resistance by providing targeted information to the patient. Thus, this study emphasizes the need for the provider to achieve this powerful synergy by addressing both dimensions of resistance concurrently, so that the patient's likelihood of behavior change would show a marked improvement. Additionally, the findings also indicated that the provider was perceived as significantly more knowledgeable and helpful when the provider addressed both relational and issue resistance in the patient simultaneously. However, future research is needed with real patients and healthcare

providers to confirm that the effectiveness of MI varies along the two synergistic dimensions of addressing resistance in the patient.

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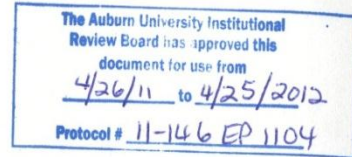


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## **Appendix A**

### IRB Approval



**(NOTE: DO NOT SIGN THIS DOCUMENT UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)**

**INFORMED CONSENT  
for a Research Study entitled**

**"Validation of the two dimensional theory of Motivational Interviewing (MI)"**

**You are invited to participate in a research study** that investigates the types of communication style by healthcare providers that are likely to be judged in the most positive light. The study is being conducted by Abhishek Krishna Pillai, a graduate student, under the direction of Dr. William Villaume, Associate Professor in the Auburn University, Department of Pharmacy Care Systems. You were selected as a possible participant because you are age 19 or older.

**What will be involved if you participate?** If you decide to participate in this research study, you will be asked to watch 15 short videos and rate healthcare providers (counselors) on a scale consisting of 15 items. Your total time commitment will be approximately 90 minutes.

**Are there any risks or discomforts?** The discomfort associated with participating in this study could be tiredness as a result of sitting in front of the computer and watching these videos.

**Are there any benefits to yourself or others?** If you participate in this study, you can expect to gain some understanding about illnesses like high blood pressure, heartburn and the undesirable effects of smoking and drinking on your health. I cannot promise you that you will receive any or all of the benefits described.

**Will you receive compensation for participating?** To thank you for your time you will be offered an extra credit towards your participation grade in your COMM 1000 course.

**Are there any costs?** There will be no additional costs involved if you wish to participate in this research project.

**If you change your mind about participating,** you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Pharmacy Care Systems or the department of Communication.

Participant's initials \_\_\_\_\_

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Your privacy will be protected. Any information obtained in connection with this study will remain anonymous. Information obtained through your participation may be used to complete my dissertation study and to publish the findings of the study in a professional journal or present them in professional meetings.

If you have questions about this study, please ask them now or contact Abhishek Krishna Pillai at [krishpa@tigermail.auburn.edu](mailto:krishpa@tigermail.auburn.edu) or Dr. William Villaume at [villawa@auburn.edu](mailto:villawa@auburn.edu). A copy of this document will be given to you to keep.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at [hsubjec@auburn.edu](mailto:hsubjec@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

**HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.**

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_ Investigator obtaining consent \_\_\_\_\_ Date 05-23-2011

Printed Name \_\_\_\_\_ Abhishek Krishna Pillai \_\_\_\_\_  
Printed Name

Co-Investigator \_\_\_\_\_ Date 5/23/11

Printed Name \_\_\_\_\_  
Dr. William A. Villaume  
Printed Name

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The Auburn University Institutional  
Review Board has approved this  
document for use from  
4/26/11 to 4/25/2012  
Protocol # 11-146 EP 1104

## **Appendix B**

Dependent Measures/Scale

1. If I were this patient, it is \_\_\_\_\_ that I would try to change my behavior.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
2. If I were this patient, it is \_\_\_\_\_ that I would think about changing my behavior.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
3. If I were this patient, it is \_\_\_\_\_ that I would resist changing my behavior.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
4. If I were this patient, it is \_\_\_\_\_ that I would want to see this physician again in  
 the future.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
5. If I were this patient, it is \_\_\_\_\_ that I would avoid seeing this physician again in  
 the future.  
 very likely 1-----2-----3-----4-----5-----6-----7 very unlikely
6. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.  
 very helpful 1-----2-----3-----4-----5-----6-----7 not at all helpful
7. If I were this patient, I would feel that talking to this physician was \_\_\_\_\_.  
 a great deal of assistance to me 1-----2-----3-----4-----5-----6-----7 no  
 assistance to me
8. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very distant 1-----2-----3-----4-----5-----6-----7 very approachable
9. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very caring 1-----2-----3-----4-----5-----6-----7 not at all caring
10. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
 very trustworthy 1-----2-----3-----4-----5-----6-----7 not at all trustworthy

11. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
very respectful 1-----2-----3-----4-----5-----6-----7 very disrespectful
12. If I were this patient, I would consider this physician to be \_\_\_\_\_ of who I am.  
very accepting 1-----2-----3-----4-----5-----6-----7 not at all accepting
13. If I were this patient, I would consider this physician \_\_\_\_\_.  
very judgmental 1-----2-----3-----4-----5-----6-----7 very nonjudgmental
14. If I were this patient, I would consider this physician to be \_\_\_\_\_.  
very knowledgeable 1-----2-----3-----4-----5-----6-----7 not at all  
knowledgeable
15. If I were this patient, I would have \_\_\_\_\_ in the medical expertise of this physician.  
very high trust 1-----2-----3-----4-----5-----6-----7 no trust at all



## **Appendix C**

### Description of Videos

**Patient with drinking problem**

(This scenario was used in cells 1, 4, and 5.)

Jim is a 24 year old student majoring in business. He engages in binge drinking several times a week. Last week he was injured in a car accident while driving under the influence of alcohol. While being treated in the emergency room, his blood tests revealed that he has developed mild liver damage from his drinking. Jim is seeing a physician at the student health center for follow up after the accident.

**Asthmatic patient with smoking problem**

(This scenario was used in cells 2, 3, and 6.)

Dave is a 22 year old student majoring in Engineering. Recently his previously mild asthma has become very severe. Last week, Dave had to be taken to the emergency room following a severe asthmatic attack and the emergency room physician strongly advised him to stop smoking. Dave is seeing a physician at the student health center for follow up after the emergency room visit last week.

**Patient diagnosed with high blood pressure**

(This scenario was used in cells 1, 4, and 5.)

Nancy is a 25 year old student majoring in Mathematics. She has recently been to a health fair where she was diagnosed with high blood pressure and was asked to meet a physician immediately. The diagnosis of high blood pressure comes to her as a shock and she is seeing a physician at the student medical center.

**Patient diagnosed with high cholesterol**

(This scenario was used in cells 2, 3, and 6.)

Kelly is a 22 year old student majoring in Finance. She has recently been to a health fair where she was diagnosed with high cholesterol. She was asked to schedule a full cholesterol test at the student health center. Now she is seeing the physician at the student health center after receiving the lab results of her cholesterol test.

**Patient with bulimia**

(This scenario was used during introduction to the data collection program)

Jessica is a 20 year student majoring in Commerce. She engages in binge eating several times a week. Last night she was found in her room extremely weak and disoriented and was taken to the emergency room. While being treated in the emergency room, it was discovered that she had developed mild tears of the esophagus due to excessive vomiting. Today Jessica is seeing the physician at the student health center for follow up.

## **Appendix D**

### Videos

## Video 1

Cell/Condition: High relational resistance with ignoring issues

Provider: Dr. Berger

- 1      Provider:      Alright Well I just took your blood pressure reading again. It's a 145/96 that is high blood pressure especially high for your age and consistent with the reading you got from the health fair, so you do have high blood pressure.
- 2      Patient:        Woo ... I just can't believe that I have high pressure. You know I mean I am only 25 and it's rare for people my age to have high blood pressure. None of my friends have high blood pressure.
- 3      Provider:        Well, you do-you do have high blood pressure. There's no doubt about it. Ah you are going to need to change your diet, you need to exercise more. And you're also going to need to take your medication on a regular basis in order to reduce your blood pressure.
- 4      Patient:        You have no idea how well I take care of my health though. I've got a major exercise routine. I jog every morning for about 20 minutes, then I go to the gym about four times a week and I feel great. I just don't really know how I could have a high blood pressure.
- 5      Provider:        Well as I said before, you do have high blood pressure and I can't stress that enough. And you will need to start taking this

medication everyday as prescribed if you want to reduce your blood pressure.

6 Patient: I don't like taking medicines. I am concerned about their side effects.

7 Provider: If you want to get your blood pressure down, you are going to need to take this medicine and increase your exercise and change your diet.

## Video 2

Cell/Condition: Low relational resistance with ignoring issues

Provider: Dr.Berger

- 1      Provider:      I am concerned that you had to go to the emergency room again last week. It seems that the smoking has increased the both the frequency and severity of your asthma attacks. Ah how do you see your smoking affecting your asthma?
- 2      Patient:        Well... I believe that I have asthma mostly because asthma runs in my family. Ah my grandfather had it, my dad has it too. So it's not really surprise that I have it also.
- 3      Provider:        Well I really would like to help you prevent your asthma from getting worse. You are really pretty young right now and I am worried that if you continue to smoke, you could have irreversible effects on your lungs ah by continuing to smoke. How do you feel about that?
- 4      Patient:        Well I take my medicines everyday just as is prescribed and so I think that will be enough.
- 5      Provider:        It's really great that you are taking your medicines as prescribed. I really want to commend you for that. You really seem motivated to manage your illness.
- 6      Patient:        Well thanks. I really try my best to manage my asthma.
- 7      Provider:        Okay, taking your controller medicine as prescribed is very important in controlling it.

- 8 Patient: Okay, ah just so you know I'm not really ready to cut back on my cigarettes. Smoking helps me to relieve a lot of stress. And I don't think smoking is really triggering my asthma attacks because I don't get them after I smoke really.
- 9 Provider: Okay, well, please continue to take your medicine as prescribed like you have been doing. If your asthma gets any worse, please let me know. I'd really like to help you.



### Video 3

Cell/Condition: High relational resistance with reflecting issues

Provider: Dr.Berger

- 1      Provider:      So you had to go to the emergency room again last week and that's because your smoking has really increased the frequency and severity of your asthma attacks. You really need to stop smoking to prevent your asthma from getting worse.
- 2      Patient:        Ah... I believe that I have asthma because it runs in my family. My grandfather had asthma, my father had too. It's really not surprising that I have it.
- 3      Provider:        Well you know you may have asthma because it runs in your family. But you also need to realize that smoking is making your asthma worse. You know you just can't ignore the effect that smoking has on your asthma. And you can't blame your asthma on your heredity and-and continue to smoke.
- 4      Patient:        Well... I take my medicines everyday just like they prescribed and I think that ought to be enough.
- 5      Provider:        It's not enough. You need to quit smoking.
- 6      Patient:        Ah I am not willing to do that. Smoking helps me relieve stress. And I don't think that smoking is triggering my asthma attacks. I don't get them after I smoke.
- 7      Provider:        I seriously doubt that smoking is relieving your stress at all. It's actually a stimulant. And while you don't think that smoking is

triggering your asthma attacks, I can guarantee that your smoking is making your lungs a lot more sensitive making your asthma worse. And believe me you don't want that to happen. You need to quit smoking.

## Video 4

Cell/Condition: Low relational resistance with ignoring issues

Provider: Dr.Berger

- 1      Provider:      Well we just took your blood pressure reading and it was a 145/96 which is high for you. So it's consistent with the reading you got from the health fair and you do have high blood pressure.
- 2      Patient:        Well ... I just can't believe that I have high pressure. I mean I am just 25 years old and it's rare for people my age to have high blood pressure. None of my friends have high blood pressure.
- 3      Provider:        So because it's pretty uncommon for people your age to have high blood pressure, it's hard for you to accept that right now.
- 4      Patient:        Yeah. And on top of that, you really have no idea how well I take care of my health. I've got a major exercise routine. I jog every morning for about 20 minutes, I go to the gym about four times a week as well and I feel great. I just don't know how I could have a high blood pressure.
- 5      Provider:        Your exercise routine will definitely help in keeping you healthy. And because you feel great and maintain a healthy life style.. between your eating habits and your exercise, it's especially hard to accept that this can be happening right now.
- 6      Patient:        Yeah. That's right.
- 7      Provider:        Would you mind if I share some information with you?
- 8      Patient:        Okay

- 9      Provider:      Well exercise is a really important step in your health and also in controlling your blood pressure. The other way to reduce your blood pressure is taking medication. Taking medication can reduce the risks of complications of high blood pressure such as stroke and heart attack. What are your thoughts about that?
- 10     Patient:        You know I don't like taking medicines. I'm concerned about their side effects.
- 11     Provider:        Okay so you are concerned about the possible side effects of medication and-and again right now you feel good about your health, your exercise routine, your healthy life style and you are not sure you want to make additional changes (Patient: Yeah) and if you get to the point where you would like to talk some more about this ah in terms of managing your blood pressure, I really like you to come see me. I would like to talk about it with you further.

## Video 5

Cell/Condition: High relational resistance with addressing issues

Provider: Dr. Berger

- 1      Provider:      Well I just got your blood pressure reading. It's a 145/96. It's high for you. But it's consistent with the health fair reading, so you do have high blood pressure.
- 2      Patient:        Well ... I just can't believe that I have high pressure. I mean I am only 25 years old and it's really rare for people of my age to have high blood pressure. None of my friends have high blood pressure.
- 3      Provider:        Well, you've got to realize that your blood pressure is high and just because it's unusual for people of your age to have high blood pressure, doesn't mean you don't have it. You do have high blood pressure and there's no doubt about it.
- 4      Patient:        But you just don't have any idea how well I take care of my health. I've a major exercise routine. I jog every morning for about 20 minutes and then I go to the gym four times a week as well. And I feel great. So I just don't know how I can have high blood pressure.
- 5      Provider:        Well you can still have elevated blood pressure even though you exercise as much as you do. You can feel perfectly healthy ah even when your blood pressure is elevated. Now I want to let you know that it is important for you to take medication every day as

prescribed to reduce your blood pressure and to reduce the chances of having a stroke or heart attack.

6 Patient: I don't like taking medicines though. I am concerned about their side effects.

7 Provider: You don't need to be worrying about the side effects. We are going to be monitoring you every day. If there are any problems with the medication, we can get you off switch you. Ah you need to understand that the risks of high blood pressure and the complications are lot higher than the risk of side effects. So you really need to continue to take the medication ah every day until the next appointment.

## Video 6

Cell/Condition: Low relational resistance with addressing issues

Provider: Dr. Berger

- 1      Provider:      I see that you had to go to the emergency room last week and I want to let you know that I am concerned that your smoking has increased the severity and frequency of your asthma attacks. So how do you see your smoking affecting your asthma?
- 2      Patient:        Well... I believe that I have asthma mainly because it runs in my family. My grandfather had it, my dad has it and it's not really surprising that I have it too.
- 3      Provider:        Okay, so-so because asthma runs in your family, you feel that smoking doesn't have a lot to do with your asthma because it's inherited.
- 4      Patient:        Yeah.
- 5      Provider:        Okay, May I share a concern that I have with you?
- 6      Patient:        Sure.
- 7      Provider:        The asthma you know you have inherited from your family makes your lungs very sensitive ah and it makes it especially sensitive to the impact of smoking. Ah I am concerned that your smoking will continue to inflame your airways in your lungs and-and will make your asthma continue to get worse. How do you feel about that?
- 8      Patient:        Well ... I take my medicines everyday just like its prescribed and I think that ought to be enough.

- 9      Provider:      Okay, certainly taking your medicines every day is a really important step in reducing the inflammation in your airways. On the other hand, because smoking increases the inflammation in your airways, it significantly reduces the ability of the medicine to get into your lungs and have an impact on your asthma. Ah this really concerns me.
- 10     Patient:         Well, I'm not certain that I'm ready to cut back on my cigarettes because I don't think smoking is really triggering my asthma attacks. My attacks don't come immediately after I smoke.
- 11     Provider:         Okay, it-it really is your decision about you know whether you want to quit smoking or how you want to treat your asthma. I am concerned that your smoking.. ah even though it doesn't trigger your asthma immediately, it's-it's causing your-your lungs to become hypersensitive over time reducing the ability of your lungs to use the medicine that you have because of the inflammation, and over time it can lead to respiratory failure and even death if your asthma gets severe enough.



## Video 7

Cell/Condition: High relational resistance with ignoring issues

Provider: Dr. Villaume

- 1      Provider:      So the gash on your arm is healing fine. Tell me, when you were in the emergency room, what did the doctor have to say about your excessive drinking?
- 2      Patient:        Well ... he said that my drinking is hurting my liver. They had some liver test results or something. I don't know. I've thought about it but I really don't feel that I have any problem with my drinking because I hold my alcohol just fine.
- 3      Provider:        Well, you know, you do have liver damage according to the blood tests that they ran in the emergency room. There's no doubt about it. You really need to stop drinking alcohol entirely.
- 4      Patient:        You sound like my family. They are always after me to stop drinking. It's ridiculous. I don't have any problems with my drinking. I feel fine except for this accident that anyone could have had.
- 5      Provider:        Look, this is serious. You need to quit drinking or you will eventually develop fatal liver damage. You can die from this.
- 6      Patient:        I feel perfectly fine. There's just no way that my health is that bad. I don't believe those test results. You people just don't like my drinking even though I handle it just fine.

7      Provider:      If you continue to drink alcohol you will continue to damage your liver. And eventually the damage will be irreversible. You need to stop drinking now. I can't stress that enough.

## Video 8

Cell/Condition: Low relational resistance with ignoring issues

Provider: Dr. Villaume

- 1      Provider:      So, as you can see, the results of your blood test the other day have confirmed that indeed you have very high cholesterol. How do you feel about having high cholesterol?
- 2      Patient:        I am just confused, I thought high cholesterol is only for older people
- 3      Provider:        Well, I really would like to help you to reduce your cholesterol to much healthier levels. Would you mind if we talked about your making some changes in your diet and your exercise habits?
- 4      Patient:        I don't understand why I need to make changes. I thought high cholesterol is only for older people who aren't active. I actively participate in sports and eat the same food as all of my friends.
- 5      Provider:        Oh it's really great that you actively participate in sports. That's really very-very good for reducing your cholesterol, so keep up your involvement in sports. Ah would you tell me more what you eat on a typical day.
- 6      Patient:        I eat like most college students. I eat fast foods like hamburgers, french fries, barbeque. But I am not planning on making any changes to my diet. I don't want to think about it right now. I'm young and shouldn't have to worry about it.

- 7      Provider:      Well I would like to give you this pamphlet that contains all the information you need to-to manage your high cholesterol such as eating a low fat diet, and information about exercising daily. I am just concerned that your cholesterol will remain high.
- 8      Patient:        I am not worried about it right now.
- 9      Provider:        So ah, if you ever feel like talking to me about reducing your cholesterol sometime in the future, please come see me, talk to me and I will be more than happy to-to assist you with this.

## Video 9

Cell/Condition: High relational resistance with reflecting issues

Provider: Dr. Villaume

- 1      Provider:      So ah as you can see, the-the results of your blood test the other day have confirmed that indeed you have very high cholesterol.
- 2      Patient:        I know I have high cholesterol, but I am not worried about it until I get older.
- 3      Provider:        Okay so you think it's a problem only for older people in their 50s and 60s? Well, high cholesterol is a big deal even for people at your age. You really need to get your cholesterol much lower by making some changes in your diet and in your exercise habits.
- 4      Patient:        I don't understand why I need to make changes. I thought high cholesterol is only for older people who aren't active. I-I actively participate in sports and I eat the same fast foods as most college students.
- 5      Provider:        Okay fine, even though you're involved in sports, you're active there, you're still eating at the same fast food restaurants. Ah and if you eat the same fast foods as your friends are eating at those restaurants, you are probably eating a lot of foods that's very greasy and extremely high in cholesterol.
- 6      Patient:        Yes I eat hamburgers, french fries and barbeque. But I'm not planning on making any changes to that. I don't want to worry about it because I'm young.

- 7      Provider:      Even though you're young, if you continue to eat those greasy foods, your cholesterol is going to remain high and like I said those kinds of foods have a lot of cholesterol. Okay?
- 8      Patient:          But I'm just not worried about it right now.
- 9      Provider:          You need to take steps now while you're still young. I-I really hope that you will listen to what I'm saying.

## Video 10

Cell/Condition: Low relational resistance with reflecting issues

Provider: Dr. Villaume

- 1      Provider:      So the gash on your arm is-is healing just fine. Ah given that you were in the emergency room last week, what are your thoughts about your drinking?
- 2      Patient:        Well ... the doctor said I'm hurting my liver with my drinking. They did some liver test or something. I don't know. Ah but I mean I thought about it and I don't really feel I have any problem with my drinking. I hold my alcohol just fine.
- 3      Provider:        So on the one hand (exasperating) you don't feel like you have any liver problems due to your drinking. On the other hand, the emergency room doctor said that the liver tests indicate that you have some liver damage as a result of drinking. Ah what do you make of that?
- 4      Patient:        Well I mean it's just people are always trying to get me to stop drinking for some reason. I mean first it's my parents, then it's this doctor. I just think it's ridiculous. I don't have any problems with my drinking and I feel fine except for this one accident that anybody could have had.
- 5      Provider:        So you feel you're healthy and you don't feel like you have any problems with your alcohol, you handle your alcohol fine and consequently you feel like the parents and emergency room doctor

are just using these tests to get you to stop drinking needlessly. Ah you really don't feel like your drinking is causing you any problems.

6 Patient: Yeah. I mean there's no way my health is as bad as those test results. I just don't believe it. Ah I just think that you people don't like my drinking.

7 Provider: So you don't believe the test results and you think they are just being used as a way to get you to stop drinking.

8 Patient: Yeah, exactly.

9 Provider: And right now you don't feel like you have any need to do anything about your drinking. So ah if you ever feel like you-you do need to cut back on your drinking, please come back and see me. I-I really would like to help you with that.



## Video 11

Cell/Condition: High relational resistance with addressing issues

Provider: Dr. Villaume

- 1      Provider:      So the gash on your arm is healing fine. But given that you were in the emergency room last week, what-what did the physician have to say about your excessive drinking?
- 2      Patient:        Well ... he did say that my drinking is hurting my liver. They had some liver test results and I don't know. Ah I thought about and I don't feel I have any problem. I handle my alcohol just fine.
- 3      Provider:        (Exasperating). You've got to realize that you do have liver damage according to the blood tests that they ran in the emergency room. Your drinking is definitely hurting your liver and the fact that you hold your alcohol better than most people is totally unrelated to whether you are damaging your liver when you drink alcohol. You really need to stop drinking now completely.
- 4      Patient:        Yeah you sound just like my family. They are always after me to stop drinking. I think it's ridiculous. I don't have a problem. Ah I feel fine except for this accident that anybody could have had.
- 5      Provider:        (Exasperating). So tell me, do you think your family and your doctors are after you to stop your drinking for-for no good reason? (Exasperating). In the beginning stages of liver damage you can be damaging your liver even though you feel just fine and that happens every time you drink alcohol, even though you feel fine.

- 6 Patient: Like I said I feel perfectly fine and I don't think there is any way that my health is that bad. I don't believe the test results and I think you people are just trying to get me to stop drinking.
- 7 Provider: Look I understand that you don't trust the test results, that you feel fine and that you feel that you don't have a drinking problem. But these tests... they are extremely reliable and they indicate that if you continue to drink, you will continue to damage your liver. And eventually that damage will be irreversible and so (exasperating) you need to stop drinking now altogether and I really just cannot stress that enough.

## Video 12

Cell/Condition: Low relational resistance with addressing issues

Provider: Dr. Villaume

- 1      Provider:      As you can see, the results of your blood test the other day have indicated that indeed you have very high cholesterol. Ah what's your understanding of what can happen to you if your cholesterol remains very high?
- 2      Patient:        Well, I thought I only have to worry about cholesterol when I am older.
- 3      Provider:        So you feel that because you're young you're not at a risk of suffering a heart attack or stroke due to high cholesterol. What would make you decide that cholesterol is something to worry about even at your young age?
- 4      Patient:        I thought high cholesterol is only for older people who are inactive. But I'm young. I participate actively in sports and eat the same food fast foods as most people.
- 5      Provider:        Unfortunately anyone with very high cholesterol is at a risk of a major stroke or heart attack. Now your-your active involvement in physical activities really does help with reducing your cholesterol. Ah tell me more though about what types of food you eat.
- 6      Patient:        Like most college students I eat fast foods- hamburgers, french fries, barbeque. But I'm not planning on making any changes. I'm young and I don't worry about it.

- 7      Provider:      Okay, so you don't want to worry about making any changes in your eating habits until you're much older. Ah may I share with you what concerns me?
- 8      Patient:          Sure.
- 9      Provider:          Your actively participating in sports is really great for your cholesterol. Ah I am concerned though that if you continue to eat the fast food, your cholesterol will remain high, and what will start to happen is-it starts to deposit on the inside of the walls of the arteries leading to your heart and your brain and that can lead to a premature stroke or heart attack for example in your 30s or 40s when you are relatively young instead of much later such as in your 50s or 60s. So what are your thoughts about making some changes now in terms of what you're eating so that you can reduce the risk of a premature stroke or heart attack when you're still in your 30s or 40s?