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The Influence of Patient-Practitioner Orientation on Practitioners' Self-Perception of Adhering to a Motivational Interviewing Style of Communication in Medical Settings

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Philadelphia College of Osteopathic Medicine

Department of Psychology

The Influence of Patient-Practitioner Orientation on Practitioners' Self-Perception of
Adhering to a Motivational Interviewing Style of Communication in Medical Settings

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Submitted in Partial Fulfillment of the Requirements for the Degree of

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DEPARTMENT OF PSYCHOLOGY**

Dissertation Approval

This is to certify that the thesis presented to us by Brian Ashenfelter on the 9th day of May, 2017, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

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Abstract

As of 2012, approximately 117 million adults have experienced at least one chronic illness (CDC; 2014). Healthy lifestyle choices can reduce the probability of developing particular chronic conditions, such as diabetes, heart disease, and specific forms of cancer (CDC; 2014). Individuals with chronic conditions may continue engaging in unhealthy lifestyle choices, despite having knowledge of the adverse ramifications. This includes nicotine use, dieting, and a sedentary lifestyle with limited physical activity. There are various manners in which primary care practitioners can address lifestyle choices with their patients. Motivational interviewing (MI) is a patient-centered approach, which is used to facilitate readiness to make behavioral changes. Although research has demonstrated the efficacy of MI in medical settings, it is not a commonly utilized approach by medical practitioners. The purpose of the current study was to investigate whether or not practitioner orientation (disease-centered or patient-centered) influences a practitioners' self-perceived adherence to an MI style of communication. Participants for the study included physicians and non-physicians (nurse practitioners and physician assistants) who were practicing in a primary care setting. The findings indicate a relationship between practitioner orientation and perceived adherence to an MI style of communication. Practitioners generally endorsed a perceived MI style of communication, suggesting that practitioners in medical settings believe they are utilizing MI when addressing lifestyle choices. Additional research is warranted to determine whether or not a perceived MI style of communication translates to actual clinical practice in primary care settings.

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Chapter One: Introduction

Statement of the Problem

The prevalence rate of preventable chronic diseases has dramatically increased over the last several decades. According to the Center for Disease Control and Prevention (CDC; 2014), approximately 117 million adults have at least one chronic health illness. Although some chronic diseases are unavoidable, engaging in healthy lifestyle behaviors can prevent chronic conditions such as diabetes, cancer, obesity, heart disease and stroke (CDC; 2014). Lifestyle behaviors are often discussed during medical examinations. However, research illustrates the fact that 30 to 50% of patients demonstrate poor adherence to medical recommendations (Vermeire, Hearnshaw, Van Royen, & Denekens, 2001). Consequently, patients who engage in poor lifestyle behaviors are at risk for chronic disease. In addition to medical complications, treatment of chronic health conditions is often costly. In 2006, for example, 84% of health care funding was allotted to the treatment of chronic disease (CDC; 2014). Lifestyle choices such as substance use, tobacco use, dieting, and exercise may prevent chronic diseases and reduce medical costs.

Motivational interviewing (MI) is a patient-centered approach, utilized to increase readiness to change behaviors (Rollnick & Miller, 2009). Past research has demonstrated that MI is efficacious for increasing motivation to change maladaptive behaviors for various populations. Freyer-Adam et al. (2008) found that using MI for patients with alcohol use issues increased their readiness to change. MI is also effective for enhancing confidence to change, as well as reducing the occurrences of maladaptive behavior including alcohol and tobacco use (Lundahl et al., 2013). Moreover, MI has been useful

for behavior change in regard to dieting. According to Hardcastle et al. (2013), patients exposed to MI were able to lower their body mass index (BMI) and cholesterol, which resulted from dietary change.

Alterations in dieting and exercising behaviors are pivotal components to diabetes management. Although patients are generally informed of diabetic complications, modifications to health-related behaviors may be unsuccessful. Patients who participated in MI demonstrated improvements to glycemic control, in addition to quality of life (Channon et al., 2007). In addition, Chen, Creedy, Lin, and Wollin (2012) established the fact that improving diabetes management with MI helps to facilitate self-efficacy and enhance the patient's quality of life (QOL).

In the context of healthcare, physicians have applied certain components of MI such as affirmations and reflections (Werner, Lawson, Panaite, Step, & Flock, 2013). Primary care nurses have also demonstrated enhanced communication skills by using agenda setting and permission seeking approaches (Noordman, Weijden, & Dulmen, 2014). With respect to MI training, research suggests that MI curricula assist health care practitioners to develop the knowledge, skills and confidence to utilize an MI style of communication (White, Gazewood, & Mounsey, 2007; Spollen, Thursh, Mui, Woods, Tariq, & Hicks, 2010; Fu, Roth, Battaglia, Nelson, Farmer, Do, Goldstein, Widome, Hagedorn, & Zillich, 2015).

Although certain practitioners recognize the utility of MI, a paternalistic approach is continually used when treating patients with unhealthy lifestyles (e.g., diabetes, nicotine use, and substance abuse). That is, the practitioners may override a patient's autonomous decision by instructing them, which is often done without consent

(Johnstone, 1999). This, in part, may be related to specific attitudes maintained by practitioners. For example, physicians generally believe that using counseling approaches is time consuming (Sargeant, Valli, Ferrier, & MacLeod, 2008). Consequently, they may employ a more educative approach, as opposed to facilitating a collaborative dialogue. In smoking cessation, for example, research has shown that perceptions of time restraints impede PCPs from engaging their patients in collaborative conversations (Vogt, Hall, Marteau, 2005).

Patient-practitioner orientation (PPO) describes a practitioner's set of beliefs with respect to practicing from a patient-centered or disease-centered approach (Krupat et al., 2000). Although this is categorized into patient-centered and disease-centered, Krupat conceptualizes the PPO on a continuum. Therefore, practitioners may be flexible in their treatment approach, depending on contextual factors. A patient-centered orientation refers to the belief that the individual is the central focus of treatment, not the disease itself. Disease-orientation, on the other hand, describes the viewpoint that the illness is the primary focus of treatment. Physicians who are more disease-centered are generally less likely to involve their patients in medical decision-making (Krupat et al., 2000).

PPO may influence willingness and intention to use the MI approach, although research in this area is limited. However, research has illustrated that medical students become less patient-centered as they progress through their training (Haidet et al., 2002). This may be reflective of how medical programs train practitioners. As a result, practitioners may feel more comfortable using a paternalistic approach when addressing behavioral changes. Patients who are exposed to a paternalistic approach, however, are more likely to be unsatisfied with their physician, compared with those physicians

exposed to MI (Dellasega, Anel-Tiangco, & Gabbay, 2012). Therefore, a patient's reluctance to engage in lifestyle changes may be influenced by his or her practitioner's orientation.

Purpose of the Study

The goal of the present study is to examine the relationship between practitioners' orientations (disease-centered or patient-centered) and self-perceived adherence to an MI style of communication when addressing nicotine dependence and diabetes. For the purpose of the study, practitioners will consist of physicians, nurse practitioners, and physician assistants. Specific MI components to be assessed will include the updated MI spirit (partnership, acceptance, compassion, and evocation), based on Miller and Rollnick's third edition of *Motivational Interviewing* (2013). Gaining a better understanding of how practitioner-orientation influences treatment approach may contribute to the development of effective MI training programs for medical professionals. Specifically, medical trainers may consider incorporating a patient-centered style of communication, such as MI, when developing a curriculum for treating diabetes and nicotine dependence. The study will also attempt to establish whether or not there are differences in self-perceived adherence to an MI approach between physicians, nurse practitioners (NPs), and physician assistants (PAs). Recognizing this will help determine whether or not MI education programs should focus on particular populations, such as individuals with diabetes or nicotine dependence issues, when training practitioners.

Chapter Two: Literature Review

Motivational Interviewing

Transtheoretical Model of Change. Successful alterations of lifestyle behaviors are contingent upon the patient's level of commitment. More specifically, certain patients may be unaware that their actions are problematic, or, are placing them at risk for chronic illnesses. Therefore, they are less likely to commit to lifestyle changes. Prochaska and DiClemente devised the transtheoretical model (TTM) of change (1982), which delineates the underlying processes of behavior transformations. TTM therapy emphasizes the importance of "consciousness raising" in order to facilitate a progression through the stages of change (Prochaska and DiClemente, 1982).

Consisting of 5 stages (pre-contemplation, contemplation, preparation, action, and maintenance), TTM is a model by which clinicians can assess for readiness to change, upon which, specific interventions can be adjusted to better suit the patient (Prochaska, DiClemente, & Norcross, 1992). Assessing for readiness to change is essential for physicians because their lifestyle counseling interventions may be ineffective, depending on which stage of change the patient is in. For example, an individual in the pre-contemplation stage is generally unaware that he or she has a problem and is reluctant to change (McConaughy, Prochaska, & Velicer, 1983). Instructing a pre-contemplative patient to change a behavior (i.e. decrease alcohol use) may be futile, given that he or she believes that the alcohol consumption is a non-issue.

TTM is an effective framework from which professionals can assess for a patient's readiness to initiate lifestyle adjustments. However, research pertaining to the applicability of the TTM by medical practitioners is limited. From an assessment

standpoint, research has shown that the TTM is appropriate for a variety of lifestyle behaviors such as dieting, exercise, and addictive behaviors (Prochaska et al., 1992; Sarkin, Johnson, Prochaska, & Prochaska, 2001; Jackson, Asimakopoulout, & Scammell, 2007; Nigg et al., 2011). Although some studies have found that TTM interventions are effective, a systematic review of 37 randomized controlled trials demonstrated that stage based treatments have minimal influence on behavior change and on facilitating stage progression (Bridle et al., 2005). MI is a well-established treatment approach for increasing an individual's readiness to change lifestyle behaviors.

Theory of MI. Although the TTM and MI appear to be similar models, Miller and Rollnick emphasize the fact that the two are inherently different. Specifically, the TTM is a conceptual representation in which the stages of change occur, whereas MI is a detailed clinical style that is utilized to facilitate an individual's motivation to change (Miller & Rollnick, 2009). Both the TTM and MI are similar because both were established to address addictive behaviors. MI was first described as a 6-step process to create cognitive discrepancy (incongruence between problem behavior and awareness of aversive consequences) in people with alcohol use issues (Miller, 1983). Since then, MI has evolved as a clinical method that can be employed in various settings for an assortment of problematic behaviors. In the most recent edition of *Motivational Interviewing: Helping People Change*, Miller and Rollnick define MI (2013) as “a collaborative conversation style for strengthening a person's own motivation and commitment to change” (p. 12). This is accomplished through identification of change language and exploration of personal motivating factors (Miller & Rollnick, 2013).

MI is a patient-centered approach that aims to increase personal commitment to alter problematic lifestyle behaviors. Past research has attempted to delineate which specific components of MI are effective in facilitating motivation to change. Miller and Rose (2009) categorized the mechanisms of MI into the following components: relational and technical. The relational element represents the patient-centered nature of MI, which is established through clinicians' devotion to the spirit of MI (Miller & Rose, 2009). According to Moyers and colleagues, clinician interpersonal skills are predictive of patient involvement. That is, patients are more actively involved during MI sessions when clinicians demonstrate good interpersonal skills, even when using confrontational approaches such as warning and directing (Moyers, Miller, & Hendrickson, 2005). The spirit of MI consists of four aspects including partnership, acceptance, compassion, and evocation (Miller & Rollnick, 2013).

Partnership speaks to the therapeutic alliance by which the clinician serves as collaborator, relying on the patient's expertise of himself or herself. This partnership develops from unconditional acceptance, which includes autonomy support, accurate empathy, affirmation, and demonstration of absolute worth (Miller and Rollnick, 2013). Compassion is the most recently added feature of the spirit of MI. Miller and Rollnick (2013) assert that compassion does not consist of exhibiting feelings towards a patient; rather, it is a dedication to prioritizing the patient needs such as their overall welfare. With evocation, clinicians resist their urge to change patients through a direct communication style. Instead, clinicians seek to elicit not only change language from the patient, but also personal strengths (Miller and Rollnick, 2013). Further, Moyer

emphasized the idea that the therapeutic relationship also facilitates client language for behavioral change (Moyer, 2014).

Miller and Rollnick (2009) classify the technical element of MI as the elicitation of change talk. This is accomplished with a communication style that guides; it is a style in which the clinician utilizes the following core interviewing skills: open questions, affirmations, reflections, and summaries (OARS). Open questions are intended to facilitate more informative responses from an individual, which are related to a specific topic (Miller & Rollnick, 2013). Affirmations, on the other hand, are statements that simply recognize the strengths and or recent accomplishments of a patient. An example of this includes, “You really tried hard this week” (Miller & Rollnick, 2013, p. 65).

With reflections, the clinician conveys understanding of what the patient is stating. Simple reflections include little information outside of that which the patient states, whereas complex reflections add meaning beyond what the client communicates (Miller & Rollnick, 2013). Finally, summarizing is an all-encompassing reflection that highlights change talk elicited during the conversation. Summarizations convey a desire to understand the patient, which in effect allows the patient to elaborate on what he or she has said (Miller & Rollnick, 2013). Appropriate use of the OARS approach is critical for establishing the relational component during MI sessions.

Efficacy of MI

MI in a Medical Setting. Considering the occurrences of chronic illnesses in medical settings, MI can be especially valuable to practitioners when addressing lifestyle choices. Anstiss (2009) asserts that MI should be utilized as a “front-line” approach when treating individuals who are at risk for chronic illness. He further argues that the

implementation of MI would be supportive of healthcare reformation objectives, which includes a more highly patient-centered and evidence-based approach (Anstiss, 2009). Current literature supports Anstiss' contention that MI should be adopted in medical settings.

MI is an effective approach for addressing an assortment of lifestyle behaviors within the medical field. When used by practitioners in randomized controlled trials (e.g. physicians, nurses, dieticians, and psychologists), MI has demonstrated a positive effect in 74% of the experiments (Rubak, Sandbaek, Lauritzen, & Christensen, 2005). A more recent meta-analysis (Lundahl et al., 2013) has indicated that MI is effective in increasing self-monitoring and in confidence to change health related behaviors, in addition to decreasing alcohol use, weight gain, and sedentary behaviors. MI is also advantageous for increasing medical treatment adherence in asthmatic patients (Broers, et al., 2005). In regard to weight management, primary care patients of low socioeconomic status who have been exposed to MI are more likely to increase exercise regimens (Hardcastle, Blake, and Hagger, 2013).

In addition to treating medical disorders, practitioners frequently screen their patients for substance use issues. As previously noted, MI is an effective approach for increasing motivation to alter lifestyle choices related to substance use. When applied in medical settings, MI is more successful for decreasing substance use, relative to more commonly used interventions such as educational pamphlets (VanBuskirk & Wetherell, 2014). MI has also been modified to address substance use issues for adolescents. Project CHAT is a brief amendment of MI and has been effective in decreasing marijuana use and intention to use marijuana (D'Amico, Miles, Stern, & Meridth, 2007). Despite

this, research on the application of Project CHAT by medical practitioners is limited.

Overall, research demonstrates that MI is an effective approach for addressing lifestyle behaviors in medical settings. It is important to note, however, that practitioners in general do not incorporate formal MI into their daily practice (Cox et al., 2011).

The majority of practitioners are not utilizing MI while treating patients in need of lifestyle changes, regardless of its efficacy and applicability in medical settings. In fact, Cox et al. (2011) found that while treating overweight patients, only 10% of physicians applied MI approaches. Those who integrated MI used only certain components such as affirmations and simple reflections. Based on this finding, Cox concluded that it might be difficult for physicians to apply formal MI during medical visits (Cox et al., 2011). More recent literature also indicates that physicians seldom use formal MI when discussing smoking cessation (Noordman, Koopmans, Korevaar, Van Der Weijden, & Van Duleman, 2013; Werner et al., 2013).

Willingness and ability to use MI may be associated with specific practitioner characteristics. Specifically, physicians who are male and African Americans are less likely to use MI approaches, compared with female and Caucasian physicians (Pollak et al., 2011). Additionally, Pollak established the fact that older, female physicians were more likely employ motivational interviewing strategies when working with overweight patients (Pollak et al., 2009). Previous exposure to MI may also influence whether or not physicians use this strategy during lifestyle discussions. Nurses with training and knowledge of MI were more likely to use it than those without prior exposure (Östlund, Wadensten, Häggström, & Kristofferzon, 2014; Soderlund, Nilsen, & Kristensson, 2008).

In summary, MI is an effective approach when facilitating lifestyle changes in a medical setting. Current literature illustrates the fact that physicians are generally not employing formal MI approaches. Although differences with patient satisfaction between physicians and non-physicians (PAs and NPs) were unfounded (Hooker, Potts, & Ray, 1997), research on the application of MI for PAs and NPs is limited. Considering the emerging demand for PAs and NPs in primary care (AAMC; 2013), in addition to differences in training programs between physicians and non-physicians (Hooker, 2006), developing a better understanding of barriers for all medical practitioners may help facilitate the incorporation of MI into primary care.

MI and Substance Use. As previously noted, MI was initially developed (Miller, 1983) as an approach by which clinicians could increase motivation to change in problem drinkers. In a study examining the effects of MI in a residential alcoholism treatment program, Brown and Miller (1993) found that participants exposed to MI were more actively engaged in the substance use treatment. Further, MI participants displayed considerably lower rates of alcohol consumption during a 3-month follow up (Brown & Miller, 1993). Considering the effects of alcohol use on chronic illness, MI would be a helpful approach within the context of a medical setting. However, research has demonstrated that MI has minimal effects for alcohol use in medical settings. A meta-analysis conducted by Sullivan et al. (2011) established the fact that MI had only moderate short-term effects when used by non-physician practitioners in medical settings.

MI has been applied to a variety of substance use other than alcohol. Research also supports the application of MI for heroin and cocaine use. For example, Bernstein and colleagues compared cocaine and heroin abstinence between participants exposed to

either a brief MI or a substance use handout. Analysis of the 6-month RIA hair testing showed that 22.3% of the MI participants were abstinent from cocaine, compared with the control group, which had an abstinent rate of 16.9%. In regards to heroin use, 40.2% of the MI group remained abstinent, whereas only 30.6% of the control group abstained from heroin use (Bernstein et al., 2005). Although the preceding abstinence rates were minimal, there was a noticeable difference between the use of MI and educational handouts. Substance use handouts are an approach utilized among physicians; therefore, Bernstein's findings have implications for substance use in medical settings.

Brief MI has been employed to address substance use issues in adolescents as well as in adults. Specifically, Project CHAT is a brief MI approach that was designed for increasing readiness to change in adolescents. In 2008, D'Amico examined the effectiveness of Project CHAT with adolescents using marijuana in a primary care setting. When compared with the usual care provided to substance use patients, adolescents exposed to MI for marijuana use reported less intention to use and a lower frequency of use (D'Amico, Miles, Stern, & Meredith (2008). Despite this finding, some practitioners may be reluctant to use MI for adolescents presenting with substance use issues.

Adolescent patients are not always provided with sufficient substance use counseling during medical visits. Brief MI interventions, such as Project CHAT, are structured approaches to facilitate conversations pertaining to substance use. In the context of healthcare, MI is often used for various reasons. With Project CHAT, Stern, Meredith, Gohlson, Gore, and DiAmico (2007) established the fact that healthcare providers (HP) generally assume that adolescents are unwilling to discuss substance use

issues. This may cause apprehension to engage high-risk adolescents in lifestyle change discussions. Contrary to the beliefs of HPs, further analysis of Sterns et al.'s findings revealed that adolescents are willing to discuss their substance use, despite a fear of being judged (Stern et al., 2007).

Overall, research illustrates that MI is an effective approach for substance use for a wide range of ages. Although it is not consistently used in medical settings, MI can be a helpful tool for addressing substance use. In fact, after receiving three-hour training and follow up coaching sessions, physicians rated MI as a valuable tool for addressing alcohol misuse. Physicians who participated in the training also displayed gradual improvements in MI competency because they received coaching during role-plays (Cole et al., 2012). Additional research suggests that substance use patients may benefit from MI when conducted by physicians. In a randomized controlled trial by Freyer-Adam et al. (2008), those participants exposed to MI demonstrated more readiness to change alcohol consumption by seeking treatment for substance dependence. It should be noted that the rate of alcohol consumption did not significantly decrease among participants (Freyer-Adam et al., 2008). Therefore, further research is warranted for the effectiveness of physician administrated MI and alcohol abstinence.

MI and Nicotine Cessation. MI has also been employed to increase readiness to change in individuals who regularly use nicotine. For example, Davis et al. (2011) compared the effectiveness of MI versus “prescriptive advice giving” in regular smokers (1 pack per day) who were in the pre-contemplative or contemplative stage of change. Findings suggested that both interventions were equally effective in decreasing frequency of nicotine use (Davis et al., 2011). Although MI was successful in decreasing cigarette

use, the findings indicate that advice giving is a viable option for physicians. Davis's findings, however, are limited by a high attrition rate in the prescriptive advice group. Therefore, advice giving in clinical practice may not be equally effective, as compared with MI.

In addition to advice giving, treatment plans for smoking cessation may include nicotine replacement therapy. In a more recent study, Okuyemi examined whether or not MI and the nicotine patch were more effective than advice giving and the nicotine patch. Similar to Davis's findings, there were no differences between treatment groups (Okuyemi et al., 2013). It should be noted that participants were motivated to quit before entering the study. For that reason, it was concluded that MI is more effective for individuals who are less willing to change (Okuyemi et al., 2013).

Motivational enhancement therapy (MET) is an adaptation of MI, created by Miller and colleagues. MET is time-limited approach that was designed to facilitate immediate intrinsic motivation to change (Miller, Zweben, DiClement, and Rychtarik, 1999). A recent study compared the efficacy of structured brief advice (SBA) and MET in adolescent smokers. Findings suggest that adolescents exposed to MET were more likely to reduce smoking, relative to those who received SBA. On the other hand, there were no statistical differences in smoking abstinence between the groups (Audrain-McGovern et al., 2011). The preceding findings are relevant because reduction of smoking may increase confidence to quit, which is a critical element of behavior change. A more current investigation (Louwagie, Okuyemi, & Ayo-yusuf, 2014) demonstrated that MI was nearly twice as effective as brief advice in facilitating sustainment of cigarette abstinence. Despite the treatment differences, abstinence rates were

considerably low between both groups (MI = 25.4%, brief advice = 12.8%). Therefore, supplemental treatments may be required to enhance the effects of MI in smoking cessation.

Previous studies have noted the importance of combining adjunctive treatments with MI. In a meta-analysis examining MI and smoking cessation (Hettema & Hendricks, 2010), significant aggregated effect sizes were found in several studies, illustrating that MI is a valuable approach. Another notable finding in Hettema's review was that MI was more effective with individuals who displayed lower intention and motivation to quit. From this finding, it was recommended that additional "skill-based" interventions be combined with MI (Hettema & Hendricks, 2010). Application of supplemental treatment in smoking cessation may be helpful, especially to individuals for whom motivation is high. Cognitive behavioral therapy (CBT) is a short-term psychotherapy that alters unhelpful thinking patterns to ameliorate distressing emotions and or eliminate maladaptive behaviors (Beck, 1964). When CBT is combined with MI, Lindqvist et al., (2013) established that smoking abstinence rates increased by 5%.

Overall, research pertaining to MI and smoking cessation has produced conflicting findings. More recent literature suggests that MI should be combined with additional interventions such as CBT. In regard to healthcare, MI is of significant importance because of the chronic illnesses associated with nicotine use. In an examination of physician-led smoking cessation approaches, 56% of physicians displayed MI behaviors during medical visits (i.e. affirmations and reflections), without formal training in MI (Werner, Lawson, Panaite, Step, & Flocke, 2013). This demonstrates the fact that some physicians are applying certain technical components of MI. It should be

noted, however, that the participants were not using the relational element of MI, such as MI spirit (Werner et al., 2013). Considering the efficacy and applicability of MI for nicotine use, physicians may benefit from trainings on MI to enhance knowledge of and aptitude to incorporate MI spirit.

MI and Obesity. Aside from genetic factors, obesity is often the result of an energy imbalance, which involves the excessive consumption of calories and lack of exercise (CDC, 2012). Therefore, engaging in dieting and exercise behaviors could prevent obesity, as well as secondary medical complications. Research on the effectiveness of MI on weight loss, as well as dieting and exercising, has varied. For example, Davoli et al. (2013) found that overall BMI did not increase in children and adolescents who received family MI sessions. Although MI did not influence BMI, positive lifestyle changes occurred more frequently in the treatment group as compared with the control group (Davoli et al, 2013).

Other research supports the utility of MI on the alteration of exercising and dieting lifestyle behaviors. After exposure to MI, low socioeconomic status (SES) obese patients maintained an increased frequency of exercising during a 3-month follow up (Hardcastle, Blake, Hagger, 2012). Hardcastle also found a “dose-response relationship” such that MI was most effective with four to five individual sessions (Hardcastle et al., 2012). Although the preceding findings support MI for increasing exercise, four to five sessions is not feasible for physicians. Pollak implemented a briefer approach, with physicians counseling adolescents on weight-related issues. Results from this study illustrated the fact that participants were more likely to increase exercise when their physicians demonstrated advanced MI spirit (Pollak et al., 2009). Considering the small

sample size (n = 16 physicians), further research is needed on physician MI spirit and changes in exercising.

Dieting is another component to lifestyle counseling for patients who are obese. Cox et al. (2011) examined how empathy and MI approaches in Primary Care Physicians (PCP) influence dieting in obese and overweight patients. Higher ratings in empathy were associated with self-reported decreases in fat intake, in addition to increases in fiber consumption. Further analysis demonstrated that patients reported higher levels of confidence to increase their nutrition when their physicians used MI approaches (Cox et al., 2011). Implications of the preceding findings suggest that the implementation of a MI-consistent style of communication is a viable option for physicians.

Research has also explored the impact of MI on physiological changes such as cholesterol levels and body mass index (BMI). Unhealthy dieting may elevate cholesterol levels and increase risk for cardiovascular disease (CVD). In a recent RCT (Hardcastle, Taylor, Bailey, Harley, & Hagger, 2013), MI was compared with a standard information intervention for individuals at risk for CVD. During a 12-month follow up, MI participants were able to maintain reduced cholesterol levels, whereas the control group demonstrated elevated cholesterol levels (Hardcastle et al., 2013).

Several meta-analyses have investigated the influence of MI on biomedical changes over the last decade. In 2005, Rubak and colleagues found significant effect sizes for MI with BMI, systolic blood pressure, and blood cholesterol levels (Rubak, Sanbeck, Lauritzen, & Christensen, 2005). Two recent meta-analyses found that MI used in medical settings was effective in reducing weight loss (Lundahl et al., 2013; Barnes & Ivezaj, 2015). Among the biomedical changes, MI is most influential on blood pressure

and weight loss, as evidenced by a recent systematic review (VanBuskirk & Wetherell, 2014). In general, MI is an effective approach for facilitating motivation and confidence to engage in lifestyle changes including dieting and exercise. Literature also indicates that physicians are capable of effectively employing MI components when addressing concerns pertaining to obesity.

MI and Diabetes. Management of diabetes requires several changes in lifestyle behaviors such as dieting, exercising, and self-monitoring of glucose levels. Patients may also be required to adhere to medication regimens, depending on glycaemic (blood sugar) control (CDC; 2014). Management of diabetes can be assessed through measurement of hemoglobin A1C (HbA1c) levels, which is a blood test that determines a 3-month blood sugar average. Considering how lifestyle choices affect the management of diabetes, MI has been utilized for diabetic populations. Research in this area, however, has generated conflicting findings. For instance, Wang compared MI to structured diabetes education (SDE) in adolescents with diabetes. Although both interventions were effective, MI was no more effective than SDE (Wang et al., 2010), suggesting that a standard educative treatment approach is sufficient.

Similar to Wang's findings, Rubak found that physicians who applied MI were equally as effective as those physicians who used standard care (Rubak, Sandbaek, Lauritzen, Broch-Johnsen, & Christensen, 2011). Specifically, reductions in HbA1c levels were comparable for both the intervention and control groups. Despite these findings, Rubak notes that the control group physicians were employing MI approaches during the trial (Rubak et al., 2011). This may have compromised the validity of the

findings. Nonetheless, MI can be an effective approach when counseling diabetic patients on lifestyle changes.

Research also indicates that MI can be beneficial with individuals for whom glycaemic control is an issue. In an RCT, including adolescents with Type I diabetes (Channon et al., 2007), those participants exposed to MI displayed significantly lower HbA1c levels during the 12-month follow up, relative to the control group. Participants in the intervention group also reported improvements in quality of life (Channon et al., 2007). This is important because diabetes can lower psychological well-being and, in affect, compromise treatment adherence.

MI has also demonstrated success in decreasing HbA1c levels in overweight females with diabetes (West, DiLillo, Bursac, Gore, & Greene, 2007). In this particular study, both groups were exposed to a comprehensive weight control program consisting of behavioral therapy, exercise, and diabetes education. This further solidifies previously mentioned findings, which suggest that MI is more effective with supplemental interventions.

A qualitative approach was used to delineate barriers and motivating factors found during MI interventions in adults with Type I diabetes. Results suggest that diabetic patients often experience anxiety and frustration, which may lead to avoidance of diabetes management. In terms of increasing motivation, participants conveyed the idea that feelings of success emanating from themselves and from others were most important (Ridge, Treasure, Forbes, Thomas, & Ismail, 2011). The preceding finding illustrates the fact that confidence to manage diabetes is crucial for treatment adherence.

As previously noted, MI is advantageous for increasing confidence in one's ability to commit to behavior change. In a recent RCT examining MI in diabetic patients, Chen, Creedy, Lin, and Wollin (2012) established the fact that patients reported higher self-efficacy beliefs when compared with patients who received usual care. In addition, participants in the MI group adhered more closely to diabetes self-management strategies and had lower HbA1c levels at the 3-month follow up (Chen et al., 2012). Chen's outcome shows that MI is influential for increasing confidence to utilize self-management strategies appropriately. This is relevant to the current study because self-management recommendations for diabetes typically include lifestyle behaviors such as dieting and exercise.

Barriers To Using MI

Attitudes. MI is an ideal approach for a medical setting, considering that treatment recommendations may require lifestyle changes. Despite this, research demonstrates that physicians infrequently utilize MI approaches (Cox et al., 2011). This may be influenced by physicians' attitudes towards the utility and feasibility of implementing MI in a medical setting, although research on this matter is varied. For example, some physicians maintain negative beliefs towards using counseling approaches; however, the majority of them do not view counseling strategies as unhelpful (Vogt, Hall, & Marteau, 2005). It is important to note, however, that a number of negative beliefs towards using an MI style of communication have been identified among physicians.

Past research suggests that physicians maintain a common set of beliefs towards using counseling approaches for lifestyle changes. The most common of these includes

the belief that using such approaches during medical visits would be time consuming (Vogt, et al., 2005; Sargeant et al., 2008; Jansink et al., 2013). This belief, in part, may be influenced by actual time constraints related to a high volume of patients, in addition to other daily work demands. Inexperience in efficiently implementing MI could realistically impose difficulties with time management during medical visits. In spite of this, when MI is used efficiently for lifestyle changes, medical visits are shorter, compared to situations in which MI inconsistent behaviors are used (Pollak et al., 2014). Langewitz established the fact that 78% of patients were able to convey their initial medical concerns within 2 minutes. Further, the physicians involved in the study regarded the information as being pertinent (Langewitz et al., 2002)

MI has also been modified to address concerns related to time constraints among medical professionals. For instance, Rollnick and colleagues developed a structured MI approach for smoking cessation, which on average lasted for 9.69 minutes per session (Rollnick, Butler, & Stott et al., 1997). Although this may be difficult to balance with other patient concerns, it may be advantageous to use brief MI approaches during follow up visits addressing smoking cessation only.

MI is designed to increase an individual's readiness and willingness to modify certain lifestyle behaviors. In addition to time constraints, many physicians perceive patient's unwillingness to engage in lifestyle behaviors as the most significant barrier to treatment (Jallinoja et al., 2007). Nurses may be reluctant to use a counseling approach if patients appear that they are unready to change (Jansink et al., 2013; Soderlund et al., 2008). In regard to weight management, Befort (2006) found that physicians' perceptions of patient motivation are incongruent with the actual motivation of the

patients. Specifically, physicians commonly underestimate the extent to which their patients are motivated to change (Befort et al., 2006). Patients who appear to be unready may not be exposed to lifestyle counseling approaches such as MI. Consequently, practitioners may overlook opportunities to facilitate readiness to change through the use of an MI style of communication.

A perceived lack of provider input is another factor that potentially influences willingness to use MI. More specifically, Miller and Beech (2009) found that health care providers were concerned that encouraging patient involvement would detract from opportunities to educate patients on physical activities. In fact, some physicians fear that using lifestyle-counseling approaches will detract from opportunities to influence their patients (Sargeant et al., 2008). Given that lifestyle choices are potentially harmful, it may be difficult for physicians to refrain from using an educative approach. Overall, there are several beliefs that influence practitioners' views of MI in a medical setting. Supplemental research is needed to establish whether or not such beliefs prevent physicians from incorporating MI into their practice.

Medical Training. The manner in which practitioners are trained, in addition to medical training curricula, also has an influence on the use of life-style counseling approaches. More specifically, medical students may not receive exposure to patient-centered counseling approaches such as MI. This was evidenced by Haidet and colleagues, who found that first year medical students demonstrated more patient-centered attitudes, compared with fourth year students, whose attitudes were more disease-centered (Haidet et al., 2002). Haidet's findings imply that medical schools continue to emphasize the biomedical treatment model. Similar to changes in practitioner

orientation, medical students also demonstrate reductions in empathy as they progress through their training (Lim et al., 2013). Physician assistant students also have also demonstrated difficulty in expressing empathy (McLaughlin, Fasser, Spence, & Holcomb, 2009). Taken together, the preceding findings suggest that the minimal use of MI approaches in medical settings is potentially related to medical training programs.

Regardless of whether patient-centered curricula is in fact lacking in medical schools, MI training programs have been made available to physicians and other medical professionals. Past research exhibits the fact that MI training programs increase medical practitioners' knowledge and confidence to use MI approaches for addressing lifestyle changes (White et. al., 2007; Martino, Haeseler, Belitsky, Pantalon, & Fortin, 2007; McLaughlin et al., 2009; Spollen et al., 2010; Roman, Borges, & Morrison, 2011; Fu et al., 2015). More importantly, practitioners who receive MI trainings demonstrate increased competency levels when applying MI approaches (Eijik-Hustings, Daemen, Schaper, Vrijhoef, 2011; Lindhart et al., 2014). Although previous data suggest that physicians are willing to adapt MI approaches (Stott, Rees, Rollnick, Pill, Hackett, 1996), more recent literature also demonstrates that some physicians are unwilling to participate in MI trainings (Kralikova, Bonevski, Stepankova, Pohlova, Mladkova, 2009). Willingness to adopt and employ an MI style of communication may be associated with patient-practitioner orientation.

Patient-Practitioner Orientation

Practitioners utilize a variety of communication approaches when treating patients who require modifications to lifestyle behaviors. The paternalistic approach, for example, is a disease-oriented method that continues to be used by practitioners.

Paternalism has also been referred to as “doctor-centered,” and is characterized by non-collaboration in terms of decision-making (Byrne & Long, 1976). With regard to lifestyle counseling, practitioners may instruct the patients to make changes, as opposed to involving the patients in the decision-making process. This communication style may be derived from the manner in which practitioners are trained. Particularly, medical schools continue training students from the biomedical model, which emphasizes the importance of treating the body and disease, rather than the person (Weston, Brown, Stewart, et al., 1989). Those practitioners who strictly diagnose from the biomedical model may neglect to consider how psychological and environmental factors influence illness (Weston et al., 1989).

Although some patients are receptive to a disease-oriented style (Krupat, Rosenkranz, Yeager, Barnard, Putnam, & Inui, 2000), others are more amenable to lifestyle suggestions when a patient-centered approach is used. Patient-centered care (PCC) has been previously defined as a method by which practitioners allow patients to express their expectations, ideas, and concerns (Levenstein, McCracken, McWhinney, Stewart, & Brown, 1986). PCC has been defined more recently as a clinical method to enhance patients’ health by understanding their environment, life stressors, and emotional needs (Stewart, 2001). More importantly, PCC involves the process of establishing treatment goals collaboratively, which helps to foster an ongoing relationship between the patient and provider (Stewart, 2001). Patients who are exposed to PCC may feel more comfortable discussing lifestyle issues. Further, research demonstrates the PCC (e.g. patient-centered communication) improves health outcomes and increases patient adherence when used by physicians and nurse practitioners (Robinson, Callister, Berry, &

Dearing, 2008). Whether or not practitioners utilize PCC may be contingent upon their specific orientations (i.e. disease-oriented vs. patient-oriented).

The Patient-Practitioner Orientation Scale (PPOS) is a measure created by Krupat and colleagues, which determines the preferred orientation style of both the patient and physician. The PPOS has been utilized in research to assess physician orientation, but has not been applied to other medical professionals such as nurse practitioners and physicians assistants. Physicians who are patient-centered regard the patient-practitioner relationship as more important than the disease itself; therefore, they emphasize relationship building during medical examinations (Krupat et al., 2000). Although current literature indicates that patient-centered care is more effective than disease-centered care, Street and colleagues found that physicians from both orientations engage in partnership building behaviors during medical visits (Street, Krupat, Bell, Kravitz, & Haidet, 2003), suggesting that PPO may be situation specific and not trait-based. It is important to note, however, that Street's assessment of partnership building behaviors was limited. Particularly, they were unable to observe for non-verbal behaviors and counseling approaches such as paraphrasing (Street et al., 2003).

Overall, differences in PPO influence several factors related to patient care. For example, patients are generally more satisfied when being treated by physicians who have more patient-centered beliefs, relative to physicians with more disease-centered beliefs (Krupat, Rosenkranz, Yeager, Barnard, Putnam, & Sem, 2000; Krupat, Yeager, & Putnam, 2000). Although a relationship between physician orientation and patient satisfaction has been established, some patients prefer physicians with a disease-centered approach (Krupat et al., 2000; Krupat, Bell, Kravitz, Thom, & Azari, 2001). In the

context of lifestyle counseling, it may be more advantageous to use a patient-centered approach.

A trusting relationship is an important component when encouraging patients to commit to lifestyle changes. The development of trust is not contingent upon the physician's orientation, but rather the patient's orientation preference. Therefore, patients are more likely to trust the physician if his/her orientation is congruent with the physicians (Krupat et al., 2001). In spite of this, patient-centered physicians engage in more rapport development practices in comparison with disease-oriented physicians (Shaw, Woiszwilllo, & Krupat, 2012). Communication is also a critical factor when engaging patients in lifestyle change discussions. Specifically, patient-centered physicians in general ask fewer biomedical questions and more lifestyle inquiries such as, "Do you lift a lot of weight at work?" (Shaw et al., 2012) In summary, PCC is an effective way to increase adherence and generate positive health outcomes. Physicians who have a patient-centered orientation place more emphasis on the patient-practitioner relationship and ask more questions regarding lifestyle.

Conclusion

The prevalence of chronic diseases has drastically increased over the last several decades. As a result, a significant portion of healthcare spending has been allotted to the treatment of chronic disease. Engaging in healthy lifestyle choices such as dieting and exercise, as well as nicotine and substance abstinence can prevent certain chronic diseases. In the context of healthcare, lifestyle counseling has included educative approaches, by which the patient is provided with information pertaining to a specific lifestyle choice and or chronic disease. This may be helpful for some patients; however,

educative interventions are not always effective with individuals who are unready to change.

MI is an alternate approach for increasing patient motivation to abstain from unhealthy lifestyle choices. Research in general demonstrates that MI is effective for individuals with obesity and diabetes, as well as substance and nicotine use issues. Despite this, formal MI is not widely used by medical practitioners who treat individuals with chronic diseases. This, in part, is related to insufficient exposure to patient-centered counseling interventions during medical training. As previously noted, medical students' attitudes generally become more disease-oriented as they progress through their training. Practitioner orientation may influence intention to use MI components during lifestyle counseling, although research in this area is limited.

The purpose of the current study is to determine whether or not patient-centered practitioners are more likely to perceive themselves as using an MI style of communication, compared with disease-oriented practitioners. In 2012, the American Academy of Medical Colleges (AAMC) reported that 10% of staffing requests were for NPs and PAs. Further, between 1995 and 2006, primary care residency programs decrease by 3 %, but NP primary care programs increased by 63% (AAMC; 2013). Past research also established that there are no differences in patient satisfaction for NPs and PAs, compared with physicians (Hooker, Potts, & Ray, 1997). Considering the emergence of non-physicians in primary care, the study will compare PAs and NPs with physicians in order to determine whether or not there are group differences.

Research Questions

The following study will attempt to answer three questions. First, does PPO influence intention to use an MI style of communication in a medical setting when addressing lifestyle changes? Second, are non-physicians (physician assistants and nurse practitioners) more likely to display a higher tendency to perceive himself or herself as MI adherent, compared with physicians? Third, are there differences with respect to knowledge of MI between physicians and non-physicians?

Hypotheses

Hypothesis 1: Practitioners with a patient-centered orientation will display a higher perceived adherence to an MI style of communication when addressing lifestyle choices with patients, relative to disease-oriented medical professionals.

Hypothesis 2: Disease-oriented practitioners will demonstrate a higher perceived adherence to an educative approach when addressing lifestyle choices with patients.

Hypothesis 3: There will be differences between physicians and non-physicians with self-perception of adherence to an MI style of communication.

Hypothesis 4: There will be differences in knowledge of MI among physicians and non-physicians.

Chapter Three: Methods

Overview

The current study investigated the influence of the PPO on practitioners' perceived uses of an MI style of communication with patients requiring lifestyle changes. Further, it attempted to establish whether or not there are differences in self-perceptions of MI adherence, in addition to knowledge of MI between physicians and non-physicians; the latter consisted of physician assistants (PAs), and nurse practitioners (NPs).

Design/Design Justification

A cross-sectional correlation research design was used to investigate the relationship between patient-practitioner orientation and treatment approaches related to lifestyle changes. This design was selected because the study examined specific practitioner characteristics at one point in time, without the influence of an intervention. The brevity of a single survey was also a factor in selecting a cross-sectional design, considering the fact that practitioners are generally limited in time.

Participants

Participants included NPs, PAs, residents, and attending physicians from family medicine and primary care practices, who were recruited from listservs within the Philadelphia region, and national social media groups. The goal was to sample from various groups in order to include practitioners from diverse ethnic and cultural backgrounds.

Inclusion Criteria

Participants who were determined as eligible for the study were practicing medical professionals. Those who qualified possessed either a doctor of medicine (MD),

doctor osteopathic medicine (DO), or other credentials required for NPs and PAs (i.e. Master of Science in Nursing, Doctor of Nursing Practice, Master of Physicians Assistant Studies, Master of Health Sciences, or Master of Medical Sciences). Qualified practitioners were practicing medicine for a minimum of 20 hours per week during completion of the survey. Those who practiced in the following medical settings were eligible to participate: family medicine, internal medicine, and general pediatrics.

Exclusion Criteria

Practitioners who are practicing for less than 20 hours per week were excluded from the study. Additionally, those who are retired from practicing medicine were ineligible to participate in the study.

Recruitment

Physicians and PAs were recruited from the following two email listservs within the Philadelphia region: the Philadelphia College of Osteopathic Medicine alumni listserv, and the Crozer Family Health listserv. LinkedIn and Facebook were also used for recruiting physicians, PAs, and NPs. A solicitation letter was disseminated through the preceding listservs, in addition to the social media group pages. The email included a brief explanation of the study, in addition to participant requirements. Prospective participants were offered a chance to enter a lottery upon completing the survey, meaning they were deemed eligible to win a \$100.00 Visa gift card. Participants were also provided with a link that directed them to a free webinar on motivational interviewing. A snowball sampling technique was also utilized during the recruitment process. Specifically, group members forwarded the solicitation letter through social media to colleagues working in primary care.

Measure

Demographics Items. The means of measurement includes a demographics survey. Demographical items included age, sex, race, credentials, occupation (resident, fellow, attending, PA, or NP), specialty, years of experience, and exposure to MI.

PPOS. The survey was composed of all items from the PPOS to determine physician orientation. Developed by Krupat and colleagues, the PPOS is an 18-item instrument used to assess whether practitioners practice from a disease-centered or patient-centered orientation. The PPOS also contains sub-scales that calculate the degree to which physicians are “Caring” versus “Sharing.” Each question is based on a six point Likert scale, ranging from one (strongly agree) to six (strongly disagree) (Krupat et al., 2000). The following is an example of an item: “The doctor is the one who should decide what gets talked about during the visit.” The PPOS has demonstrated sufficient validity and reliability to measure physician-orientation (Krupat, Yeager, & Putnam, 2000; Shaw, Woiszwilllo, & Krupat, 2012) It has been used in numerous studies to investigate variables such as patient satisfaction, doctor-patient fit, trust, and communication style (Krupat et al., 2000; Krupat, Rosenkranz, Yeager, Barnard, Putnam, & Inui 2000; Show et al., 2012).

MI Scales. There are currently no validated and reliable scales to assess for self-perception of adherence to a MI style of communication in medical settings. Therefore, the MI Perception Questionnaire (MIPQ) was developed in order to measure behavioral intention. The questionnaire comprised 28 items, which assessed for intention to use a MI style of communication with patients for whom lifestyle changes are a part of treatment recommendations. Specific constructs were developed from Miller and

Rollnick's (2013) MI spirit (compassion, acceptance, partnership, evocation). The Motivational Interviewing Treatment Integrity (MITI 3.1.) observational coding system was used as a guideline in developing certain items (Moyer, Martin, Manuel, Miller, & Ernst, 2010).

Construct validity was addressed through dissemination of a brief survey to the Motivational Interviewing Network of Trainers (MINT). The MINT is an organization consisting of members who are regarded as experts in MI. The survey link was posted on the MINT website through a SurveyMonkey link, and included 13 questions from the MIPQ. Respondents were asked to select whether each question was essential, useful, or not necessary to the following constructs of MI: compassion, acceptance, partnership, and evocation. Participants were also encouraged to disclose feedback regarding the constructs in an open-response format. Individuals who completed the survey were offered the opportunity to enter a drawing for a \$50.00 Visa Gift Card.

Overall, there were 17 individuals from the MINT who completed the survey. Regarding the construct of compassion, 80.95% of participants found the question to be essential, 14.29% selected useful, and 4.76% determined that it was not necessary. With respect to acceptance and partnership, 100% of respondents found those items to be essential to the constructs. Finally, participants selected either essential (88.24%) or useful (11.76%) for the construct of evocation. Based on the results, there were three main revisions made to the MIPQ. First, items that measured the construct of evocation were amended to include assessing for the patient's confidence level, in addition to level of importance. Second, the items for partnership were rephrased to assess whether or not practitioners inquire about the patients as being experts of themselves, rather than content

experts (e.g. knowledge related to specific lifestyle changes for diabetes). Third, the overall language for each item was altered to include more politically correct phrasing. For example, instead of stating “diabetic patients,” “individual’s with diabetes” was used.

There are currently no well-validated measures to evaluate MI knowledge. Therefore, the investigators created the motivational interviewing knowledge questionnaire (MIK), for the purpose of assessing the participant’s knowledge of MI. Based on general concepts derived from MI, the MIK is a true and false questionnaire that is composed of 15 items. All items were reviewed and approved by an investigator of the current study, who is a MINT member. An example of an item includes, “Motivational interviewing is a patient-centered approach that is utilized to facilitate intrinsic motivation and commitment for behavior change.”

Procedure

The investigator sent the solicitation email to participants who are employed at healthcare organizations, in addition to graduates of a DO and PA program. The email contained a solicitation letter that included a brief explanation of the study, in addition to a link for SurveyMonkey, which directed the participants to the survey containing the demographic measure, PPOS, MI knowledge scale, and the MI self-perception scale. The solicitation letter was also posted on various social media group pages. Upon completing the survey, participants were thanked for their involvement and provided with the opportunity to participate into a drawing for a \$100.00 Visa gift card. To ensure anonymity, the investigator created an email account specifically for the drawing, which was not linked to their survey responses.

The principal investigator collected the data obtained from SurveyMonkey. Krupat's PPOS scoring protocol was used to code items from the PPOS measurement scale (Krupat et al., 2000). Participants who had higher scores were categorized as patient-centered, and those who had lower scores were in the disease-centered category. All participants who identified themselves as first and second year students, or as practicing medicine for fewer than 20 hours per week were excluded from the study. The investigator also excluded those individuals who had not had experience in primary care, family medicine, or pediatrics.

Chapter Four: Results

In this section the findings of the present investigation will be presented. First, the demographic characteristics of the sample will be discussed. Next, descriptive statistics for each of the measures will be reported. Finally, the results of testing for each of the hypotheses will be presented.

Demographic Characteristics

All participants who did not meet criteria for the study, or who neglected to complete all survey questions were excluded from the analysis. Of the 99 participants who completed this study, 100% were practicing medicine as a physician, a PA, or an NP. The breakdown of credentials can be found in Table 1. The ages of the participants ranged from 22 to 70 and the average age was 38.53 (10,67) with a range from 22 to 70. Almost 30% of the sample was male in gender and the overwhelming majority of the participants were white, as shown in Table 2. Almost 97% of the sample held at least a Master's degree. The breakdown of specialty areas is shown in Table 3.

Table 1
Credentials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MD	8	8.1	8.1	8.1
	DO	43	43.4	43.4	51.5
	PA	32	32.3	32.3	83.8
	NP	16	16.2	16.2	100.0
	Total	99	100.00	100.00	

Table 2
Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other	1	1.0	1.0	1.0
	Caucasian	88	88.9	88.9	89.9
	Hispanic or Latino	3	3.0	3.0	92.9
	Asian or Pacific Islander	3	3.0	3.0	96.0
	African American	3	3.0	3.0	99.0
	Native American	1	1.0	1.0	100.0
	Total	99	100.00	100.00	

Table 3
Specialty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Family Medicine	65	65.7	65.7	65.7
	Pediatrics	10	10.1	10.1	75.8
	Internal Medicine	24	24.2	24.2	100.0
	Total	99	100.00	100.00	

Physicians composed over half of the sample, followed by PAs and NPs. The years of professional experience of the sample ranged from less than 1 year to 43 years. Over 60% of the sample reported being familiar with Motivational Interviewing. Of those reporting familiarity, 32% reported using MI 1 to 5 times per week. Familiarity of MI is shown on Table 4, and frequency of practicing MI can be found on Table 5.

Table 4
*Familiarity
with MI*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	60	60.6	60.6	60.6
	No	39	39.4	39.4	100.00
	Total	99	100.0	100.0	

Table 5
*Frequency
of MI use*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to5 times per week	32	32.3	32.3	32.2
	5 to 10 times per week	17	17.2	17.2	49.5
	> than 10 times per week	10	10.1	10.1	59.6
	Not Applicable	40	40.4	40.4	100.00
	Total	99	100.0	100.0	

Descriptive Statistics

Frequency distributions for each item on each of the scales were calculated.

These data revealed that the respondents used all ratings, ranging from strongly disagree to strongly agree. Similar findings were found for the true /false options on the knowledge test. Percentages for the true or false answers in the MIK can be found on table 6. The means and standard deviations for the PPOS, MIPQ, and MIK are reported in Table 7.

Table 6
MIK Knowledge
Answers

		Frequency	Percent	Valid Percent	Cumulative percent
Motivational interviewing is a patient-centered technique that is utilized to facilitate intrinsic motivation and commitment for behavior change	True*	95	96.0	96.0	100.0
	False	4	4.0	4.0	4.0
Motivational interviewing is mainly composed of technical counseling skills, and does not require the practitioner to genuinely care about behavior change	True	88	88.9	88.9	100
	False*	11	11.1	11.1	11.1
Verbal recognition of behavior change, as well as offering empathic statements, are both vital components of motivational interviewing	True*	94	94.9	94.9	100.0
	False	5	5.1	5.1	5.1
While using motivational interviewing, it is more important for the practitioner to serve at the expert, rather than patient	True	76	76.8	76.8	100.0
	False*	23	23.2	23.2	23.2

It is imperative that practitioners listen for “change talk,” which refers to patient language that favors a desire to progress towards a behavior change goal	True*	94	94.9	94.9	100.0
	False	5	5.1	5.1	5.1
Although counseling techniques commonly use reflective statements, the use of paraphrasing and feeling reflections are not needed when applying motivational interviewing	True	82	82.8	82.8	100.0
	False*	17	17.2	17.2	17.2
Motivational interviewing was initially developed for addictions, and in contrast to confrontational approaches	True*	87	82.8	82.8	100.0
	False	12	17.2	17.2	12.1
Patients should not be viewed as resistant to change, but instead unready to change.	True*	89	89.9	89.9	100.0
	False	10	10.1	10.1	10.1
Motivational Interviewing is not considered an evidence-based practice	True	83	83.8	83.8	100.0
	False*	16	16.2	16.2	16.2
With motivational interviewing, the practitioner should be making the argument to change, rather than the patient	True	79	79.8	79.8	100.0
	False*	20	20.2	20.2	20.2
Low readiness to change or ambivalence is a normal part of the	True*	90	90.9	90.9	100.0

change process	False	9	9.1	9.1	9.1
Motivational interviewing is a simple tool to utilize, and does not involve a substantial amount of time, effort, and supervision to learn	True	34	34.3	34.3	100.0
	False*	65	65.7	65.7	65.7
With regard to technique, open-ended questions are more effective than closed-ended questions when using motivational interviewing.	True*	96	97.0	97.0	100.0
	False	3	3	3	3.0
It is important to identify barriers to change conversations, which includes confrontation, negative labeling, and asking several questions in a row	True*	89	89.9	89.9	100.0
	False	10	10.1	10.1	10.1
Summary statements are not effective techniques for highlighting change talk and demonstrating listening	True	80	80.8	80.8	100.0
	False*	19	19.2	19.2	19.2

Correct Selections are marked with a *

Table 7
*Descriptive
 statistics*

	N	Mean	Standard Deviation
PPOS Total Average	99	2.8563	.52621
MIPQ Total Average	99	4.6043	.74873
MIK Total Score	99	12.6869	2.03363

Hypothesis 1

The first hypothesis predicted that patient-centered practitioners would display a higher perceived intention to use a MI style of communication when addressing lifestyle choices, as measured by the PPOS and MIPQ. A one-tailed Pearson Correlation was calculated to investigate if there was a statistically significant association between practitioner orientation and self-perception of adherence to a MI style of communication. One-tailed correlations are typically used for hypotheses for which there is a specific direction (Field, 2009). There was a significant positive correlation ($r(99) = .255, p = .005$) between PPOS and MIP scores. The coefficient of determination reveals that 6% of the variability in MIP scores was attributable to differences in orientation (PPOS), indicating a weak positive relationship between orientation and perceived adherence. The correlation for PPOS and MIP are shown in Table 8.

Table 8
Correlations

		PPOS Total Average	MIPQ Total Average
PPOS Total Average		1	.255
			.005
MIPQ Total Average	Pearson Correlation	.255	1
	Sig. (1-tailed)	.005	
		99	99

** Correlation is significant at the 0.01 Level (1-Tailed)

Hypothesis 2

The second hypothesis predicted that disease-oriented practitioners would demonstrate a higher perceived adherence to an educative approach when addressing lifestyle choices with patients. The motivational interviewing education (MIE) scale, which consisted of four items extracted from the MIPQ, was used to assess perceived adherence to an educative style of communication. A one-tailed Pearson correlation was computed to investigate the relationship between practitioner orientation and perceived adherence to an educative approach. There was a significant negative correlation ($r(99) = -.343, P < .005$), indicating that as practitioners reported being more patient-centered, the less they adhered to an educative approach. The coefficient of determination reveals that 11% of the variability in MIE scores was attributable to differences in orientation (PPOS). The correlation for PPOS and MIE can be found in table 9.

Table 9
Correlations

		PPOS Total Average	MI Education
PPOS Total Average	Pearson Correlation	1	-.343**
	Sig. (1-tailed)		.000
	N	99	99
MI Education	Pearson Correlation	-.343**	1
	Sig. (1-tailed)	.000	
	N	99	99

** . Correlation is significant at the 0.01 level (1-tailed).

Hypothesis 3 and 4

Hypothesis 3 predicted that there would be differences between physicians, physician assistants, and nurse practitioners with self-perception of adherence to an MI style of communication. Hypothesis 4 stated that there would be differences in knowledge of MI among physicians, physician assistants, and nurse practitioners. Given the large discrepancy between the number of MD and DO participants, these were collapsed into a physician variables. Likewise, given the small number of nurse practitioners relative to PAs, these categories were also collapsed into a single category. This resulted in 51 physicians and 48 individuals in the non-physician category. The descriptive statistics on each measure across the groups is shown in Table 10.

Table 10
*Descriptive
 Statistics*

	1= physician 2= PA or NP	Mean	Std Deviation	N
PPOS Total Average	1.00	2.7734	.55509	51
	2.00	2.9444	.48392	48
	Total	2.8563	.52621	99
MIPQ Total Average	1.00	4.5098	.94102	51
	2.00	4.7046	.45485	48
	Total	4.6043	.74873	99
MIK Total Score	1.00	12.3922	2.23677	51
	2.00	13.0000	1.76249	48
	Total	12.6869	2.03363	99

A one-way MANOVA with two levels of the independent variable (discipline: physicians versus non-physicians) and three dependent variables was conducted. The three dependent variables were correlated, each of which meets an assumption of MANOVA. However, the Box's Test of the Equality of the Covariance Matrices was significant, suggesting that the covariance matrices of the dependent variables are unequal across the groups (Box'M = 41.56, $F = 6.693$, $p = .001$). Field (2013) notes that if the size of the samples are found to be equal, the Box's Test can be disregarded because the results can be viewed as unstable, and, further, it can be assumed that Hotelling's and Pillai's statistics are robust. However, there was a significant Levene's Test violation of the assumption of the equality of error variances across groups on the MIP ($F(1,97) = 5.092$, $p = .026$) and MIK Knowledge Scales ($F(1,97) = 4.452$, $p = .037$). The Hotelling's Trace = .057, $F(3,95) = 1.789$, $p = .154$) and Pillai's Trace = .053, $F(3,95)$

= 1.789, $p = .154$), both of which are not significant. There are no differences between the groups on the PPOS, MIP and MIK.

Table 11
*Multivariate
Tests*

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.988	2629.455	3.000	95.000	.000
	Wilks' Lambda	.012	2629.455	3.000	95.000	.000
	Hotelling's Trace	83.035	2629.455	3.000	95.000	.000
	Roy's Largest Root	83.035	2629.455	3.000	95.000	.000
Credentials	Pillai's Trace	.053	1.789	3.000	95.000	.154
	Wilks' Lambda	.947	1.789	3.000	95.000	.154
	Hotelling's Trace	.057	1.789	3.000	95.000	.154
	Roy's Largest Root	.057	1.789	3.000	95.000	.154

Chapter V: Discussion

The current study examined the relationship between practitioner orientation and perceived adherence to a MI style of communication, within the context of lifestyle choices. It also examined whether or not there were differences between physicians and non-physicians, with respect to self-perception and to MI knowledge. Previous research established that Patient-centered communication promotes higher treatment adherence, in addition to better treatment outcomes (Robinson, Callister, Berry, & Dearing, 2008). It should be noted that the initial groups were separated as physicians, PAs, and NPs. However, due to an uneven ratio between PAs/NPs and physicians, PAs and NPs were combined and identified as non-physicians. Hooker, Potts and Ray (1997) examined differences in patient satisfactions by combining PAs and NPs (non-physicians) and comparing them with physicians. The decision to combine PAs and NPs was also based similarities in training (Hooker, 2006), compared to physicians.

Findings and Implications

The findings indicate that there is a weak relationship between practitioner orientation and perceived adherence to an MI style of communication when addressing lifestyle issues. Specifically, self-perception of MI adherence was higher for those who endorsed patient-centered beliefs. Scores from MIPQ illustrate that medical practitioners generally perceive themselves to maintain a treatment approach that embodies an MI style of communication, especially when addressing lifestyle choices. This may be related to the curriculum within training programs to which physicians and non-physicians are exposed. That is, there may be a stronger emphasis on patient-centered

approaches throughout graduate programs, medical school, post-graduate trainings, and residency programs.

It should be noted that the overall mean score for the PPOS was low. Therefore, the participants generally endorsed beliefs that were more disease-centered. Differences between the PPOS and MIPQ scores demonstrate that primary care practitioners can utilize a patient-centered approach, yet maintain beliefs that are derived from the biomedical model. Therefore, the identification with a disease-centered orientation does not necessarily indicate the absence of a patient-centered style of communication. Rather, this demonstrates that primary care practitioners are balancing the need for patient-centered care with biomedical principles on which they were trained.

Scores from MIPQ illustrate that medical practitioners generally perceive themselves to maintain a treatment approach that embodies an MI style of communication, particularly when addressing lifestyle choices. This may be related to the curriculum within training programs to which physicians and non-physicians are exposed. That is, there may be a stronger emphasis on patient-centered approaches throughout graduate programs, medical school, post-graduate trainings, and residency programs. This is not surprising, considering that recent research has focused on MI trainings within the context of medical practices (Rubak, Sandbaek, Lauritzen, Christensen, 2005; Lundahl et al., 2013).

Despite the overall MIPQ scores, item analysis of the MIK demonstrates that medical practitioners are unfamiliar with the importance of MI spirit. For example, the overwhelming majority of the participants (88.9%) stated that MI consists mainly of technical skills, and does not require that the practitioner genuinely care about patient.

Further, 76.85% of participants reported that it is more important for the practitioner to serve as the expert, rather than the patient. This supports previous findings, indicating that medical practitioners are more likely to apply the technical counseling skills of MI without using the relational element (Cox et al., 2011). The preceding is concerning, given that interpersonal skills are a significant factor to engaging patients in behavior change discussions (Moyer et al., 2005).

Although the findings suggest a perceived adherence to an MI style of communication, this may not transpire during actual clinical practice. Previous research indicates that medical practitioners seldom utilize formal MI in clinical practice (Noordman, Koopmans, Korevaar, Van Der Weijden, & Van Duleman, 2013; Werner et al., 2013). More recently, Mullen, Forsberg, Savageau, Saver (2015) utilized the MITI scale to assess MI competence levels in physicians, finding that all participants did not meet the beginning proficiency threshold after six MI workshops. Therefore, with respect to the current study, participants' endorsement of an MI style of communication may be a product of knowledge, rather than indicative of actual clinical practice.

A negative relationship was also found between a disease-centered orientation and perceived adherence to an educative approach when addressing lifestyle choices. In addition to a relationship between orientation and perceived approach, the preceding suggests that there are medical practitioners who continue using education as an intervention for lifestyle counseling. This finding is especially noteworthy, considering the economic impact of chronic illnesses, in addition to the growing need for patient-centered practitioners.

Finally, the results established that there are no differences between physicians and non-physicians with respect to perceived adherence to an MI style of communication. Moreover, there were no group differences in MI knowledge. Given the overall MIPQ score, the preceding indicates that a significant portion of medical practitioners view themselves as MI adherent, regardless of credentials. Further, it indicates that medical practitioners are willing to incorporate an MI style of communication. This substantiates Rubak et al. (2006) research, which established that medical practitioners, particularly those with exposure to MI, view MI as more effective than doctor-centered approaches such as advice giving.

The MIK scores exhibit the fact that medical practitioners have acquired a general understanding of basic MI concepts; however, further analysis indicates insufficient knowledge with respect to the technical and relational components of MI. Demonstrated knowledge of basic MI concepts, in addition to the majority of practitioners disclosing a level of familiarity with MI, suggests that physicians and non-physicians have to a certain degree been exposed to MI. As previously noted, the availability of MI trainings in medical settings has markedly increased over the past decade (Rubak et al., 2006; Bell and Cole, 2008; Abramowitz, Flattery, Franses, and Berry et al., 2010; Cucciare et al., 2012). Exposure to MI, such as trainings and clinical application, is a crucial factor for obtaining both knowledge of and confidence to utilize a MI style of communication (White et al., 2007; Martino, Haeseler, Belitsky, Pantaloni, & Fortin, 2007; McLaughlin et al., 2009; Spollen et al., 2010; Roman, Borges, & Morrison, 2011; Fu et al., 2015).

Importance

Given that MI is an empirically supported approach within the context of medical settings (Rubak, Sandbaek, Lauritzen, Christensen, 2005; Lundahl et al., 2013), it would be advantageous for practitioners to adopt an MI style of communication, particularly when addressing lifestyle choices with patients. Results from the current study indicate that there is an existing, positive relationship between a disease-centered orientation and perceived use of a MI style of communication; albeit, the degree to which practitioners identified as patient-centered was minimal. Research suggests that patients are generally more satisfied when exposed to patient-centered treatment approaches (Krupat, Rosenkranz, Yeager, Barnard, Putnam, & Sem, 2000; Krupat, Yeager, & Putnam, 2000). Considering the efficacy of MI, in addition to high treatment costs associated with chronic illnesses, it is imperative that primary care practitioners adopt evidence-based approaches for lifestyle counseling.

The current findings exhibit the fact that there is a lack of awareness pertaining to certain MI concepts throughout primary care; medical practitioners, particularly exhibited misconceptions related to the technical components of MI. In fact, 82% of participants reported that reflective listening and paraphrasing are not essential components of MI, and 80% regarded summary statements as being ineffective for demonstrating listening. Participants did exhibit the awareness that open-ended questions were more effective than close-ended questions, suggesting that practitioners have acquired minimal knowledge of fundamental technical counseling skills.

Inaccuracies related to the spirit of MI were also revealed. For example, the vast majority of participants (89%) indicated that MI consists predominately of technical

skills. Additionally, the majority of participants indicated that the practitioner should serve as the expert, and should be making the argument for change, rather than the patient. The results also illustrate that medical practitioners maintain both disease-centered beliefs, as well as a perceived adherence to an MI style of communication. Taken together, this suggests a general willingness to learn MI principles and incorporate patient-centered approaches within clinical practice.

The majority of participants displayed a lack of understanding with respect both to the technical components of MI, as well as to the spirit of MI. As previously noted, incorporating both the relational and technical aspects are essential for proficiently utilizing a MI style of communication. The spirit of MI underscores the importance of establishing the patient-practitioner alliance, and is instrumental for involving patients in behavior change. In fact, Moyers, Miller, and Hendrickson (2005) found increases in client involvement, even when clinicians utilized confrontational approaches such as warning and directing. Client involvement was enhanced only when clinicians demonstrated sufficient interpersonal skills, however, accentuating the importance of MI spirit within the context of behavioral changes (Moyers et al., 2005). Considering the misconceptions regarding the technical and relational elements of MI, it is important that training programs emphasize the importance of counseling skills and genuine relationship building.

Limitations

The results should be construed within the framework of several limitations. First, the investigators developed both the MIPQ and the MIK scale for this particular study. Although the MINT reviewed the items for each construct on the MIPQ, it has not

by used in previous research. Further, the MIK scale may not have measured the participants' true knowledge of MI, given that the items were true and false. This is reflected by a MIK mean score of 12.69 (out of 15), with 39.4% of participants disclosing that they were unfamiliar with MI. Considering this, findings pertaining to the MI knowledge hypothesis should be interpreted with caution. Second, it is assumed that medical professionals have been exposed to patient-centered care to a certain degree. Prior knowledge of patient-centered care may increase the occurrence of a social desirability affect. That is, participants may be more likely to select items that create the perception of a patient-centered physician, both on the PPOS and MI questionnaire.

Third, behavior intention is not necessarily predictive of whether or not the actual behavior occurs. Considering this, participants who endorsed an MI style of communication may not actually incorporate an MI approach into their clinical practice. Although research indicates that behavior intention increases that likelihood of engaging in the intended behavior (Copeland, McNamara, Kelson, & Simpson, 2015), there are other factors that influence actual behavior. Perceived behavioral control (PBC), for example, is described as the perceived level of difficulty pertaining to a specific behavior (Ajzen, 1991). PBC has been established as a strong indicator of actual behavior (Terry & O'Leary, 1995). Given that the majority of participants regarded MI as being a complex approach that requires supervision, it may not translate to actual clinical practice, due to low perceived behavioral control.

The findings also lack generalizability due to the samples demographics. There was heterogeneity with respect to age and years of experience; however, the majority of participants were females, and identified as Caucasian. Finally, given a small sample size

(n=99), the findings may not be an accurate representation of medical practitioners in general.

Future Direction

Supplemental research is warranted, based upon the findings from the current study. For example, behavior intention is an unreliable predictor of actual behavior. Therefore, future research should investigate the degree to which practitioner orientation influences treatment approaches through use of qualitative analysis. This can be achieved by utilizing behavioral observation measures such as the MITI. Observation of clinical practice can be useful for identifying whether or not practitioners from specific orientations can adequately use an MI style of communication.

The findings also revealed that primary care practitioners endorse beliefs that are more consistent with a disease-centered orientation. This corroborates the Haidet et al. (2002) research, which found that fourth year medical students are more disease-oriented, compared with first year medical students. Despite a general propensity for the biomedical model, the current data suggests that primary care practitioners perceive themselves as maintaining a treatment approach that is patient-centered. The treatment approaches may also be perceived as being patient-centered by the individuals to whom they provide treatment. Considering this, future research should investigate the patients' perceptions of those practitioners who endorse disease-oriented beliefs. Doing so will help establish whether or not practitioners can maintain beliefs that are disease-centered, yet simultaneously employ patient-centered approaches.

Although results suggest that medical practitioners generally perceive themselves as maintaining an MI style of communication, this may not generalize to actual clinical

practice. Although perceived time constraints have been identified as a barrier, future research is necessary to elucidate additional inaccurate beliefs towards incorporating MI. Identifying such attitudes could help augment MI training programs in primary care, simply by providing trainees with more pragmatic ways of viewing MI.

Future studies should also examine how medical training and graduate programs influence perceptions towards patient-centered approaches such as MI. A notable finding from the current study includes the belief that MI does not necessarily require that practitioners genuinely care for the patients. Given that beliefs towards patient-centered approaches may develop during training, it would be beneficial to identify systemic barriers as they pertain to incorporating MI within medical and graduate training programs. Introducing MI concepts, while concurrently teaching biomedical principles, may increase the likelihood that practitioners in training will adopt an MI style of communication while developing their clinical ability.

Based on the findings from the MI knowledge scale, it would be beneficial for training curricula to emphasize the technical components of MI, such as reflective listening (i.e. paraphrasing, emotional reflections, and summary statements). The sample also displayed several misconceptions regarding MI spirit. Consequently, it is imperative that in MI training programs, medical practitioners accentuate the relational component of MI. More specifically, trainees would benefit from developing an understanding of the collaboration and evocation elements of MI spirit. Finally, results on the MIK suggest that participants may have possessed a general awareness of some basic MI concepts, indicating that medical practitioners are potentially receiving education on some MI principles. Another explanation for this finding could be that participants might

have responded in a socially desirable way. Therefore, the MIK scores may not necessarily reflect their genuine knowledge of MI concepts. Supplemental research should investigate the prevalence of MI trainings in both medical and graduate programs, as well as primary care practices.

Conclusion

The current study attempted to establish whether or not there is a relationship between practitioner orientation and perceived adherence to a MI style of communication, particularly when addressing lifestyle choices within the context of primary care. Findings indicate that there is a weak relationship between practitioner orientation and perceived adherence to an MI style of communication. Further, there were no observed group differences with perceived MI adherence and with knowledge of MI. Given that scores for perceived adherence and knowledge were high, this suggests that physicians, PAs, and NPs are to a certain degree receiving education on MI principles.

Although the overall sample scored within the domain of a disease-centered orientation, findings demonstrate that participants generally perceived themselves to incorporate an MI style of communication when addressing lifestyle choices such as dieting, exercising, and nicotine use. This demonstrates that medical practitioners are potentially capable of maintaining the biomedical principles on which they were trained, yet concurrently integrating an MI style of communication. More importantly, results from the MIPQ indicate a general willingness to incorporate an MI style of communication within clinical practice. Despite a perceived intention to apply MI, the degree to which participants are truly utilizing MI is uncertain. Past research suggests

that medical practitioners infrequently use formal MI. Therefore, additional research is warranted in order to address the disparity between perceived adherence to an MI style of communication and actual clinical practice.

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