The Dissertation Committee for Elisa Vinson Borah certifies that this is the approved version of the following dissertation:

The Influence of Counselor Characteristics on Use of Motivational Interviewing:

An Exploratory Study of Evidence-based Practices Implementation.

Committee:

_____
David Springer, Supervisor

_____
Richard Spence

_____
Stacey Stevens-Manser

_____
Sanna Thompson

_____
Kirk von Sternberg

The Influence of Counselor Characteristics on Use of Motivational Interviewing:

An Exploratory Study of Evidence-based Practices Implementation.

by

Elisa Vinson Borah, B.A.; M.S.W.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2010

Dedication

I would like to dedicate this work to my husband Adam. He always brings me back to reality and keeps me on the right path. Thanks for helping me finish! I would also like to dedicate this work to my father, Edward Vinson, for his inspirational doctoral degree in Chemistry. I'm glad I was able to follow in his footsteps. Finally, I would like to dedicate this work to my mother, whose early encouragement and high expectations helped me realize my academic potential.

Acknowledgements

There are always many persons behind any individual's success. Without the support and influence of others, I would not have achieved this goal.

I would like to thank my committee for their guidance: Dr. David Springer, my committee chair, for his thoughtful direction of this study, from early conceptualization to finished product; Dr. Stacey Stevens–Manser and Dr. Richard Spence for their confidence in my abilities during the PPI Project and for encouraging me to pursue my own related interests in this dissertation; Dr. Sanna Thompson for her thoughtful discussions and careful reading that greatly improved my work; and Dr. Kirk von Sternberg for his data analysis guidance.

I also acknowledge several friends and colleagues who gave their time and encouraged my progress: Donna Aguiniga, for sharing the dissertation experience with me; Dr. Dnika Travis, for modeling data analysis procedures and discussing research ideas with me; and Dr. Jamie Collins, for getting me moving in the right direction again.

Most importantly, I recognize my family members: My parents, Sonya and Ed Vinson, and my sister, Emily Vinson, who are always available to help me at a moment's notice, my husband, Adam, for his patience and love, and my children, Madeline and Zachary, for keeping my focus on what is most important.

There are several academic mentors who have helped me along the way, in chronological order: Dr. Bonnie McElhinny for her interest and expert advising of my senior undergraduate thesis; Dr. Richard Fox for his interest in my academic pursuits; Dr. Guatam Yadama for his advice and encouragement during my Master's degree; Harry

Hatry and Mary Kopczynski for their mentorship in the research world; and Dr. Leslie Jarmon for her energy and dedication to her students.

Finally, I especially thank the clinic directors and counselors who participated in this study—whose commitment to their clients far exceeds the recognition they deserve, but seldom receive.

The Influence of Counselor Characteristics on Use of Motivational Interviewing:

An Exploratory Study of Evidence-based Practices Implementation.

Elisa Vinson Borah, M.S.W.

The University of Texas at Austin, 2010

Supervisor: David Springer

Preliminary research exists indicating the importance of counselor attitudes and organizational features as influencing use of evidence-based practices (EBPs). Conceptual models of evidence-based practice implementation posit relationships among factors theoretically associated with use of an EBP, yet little research exists that explores how a constellation of counselor characteristics relate to counselors' use of evidence-based practices. Research is also lacking on the role of counselor characteristics in use of motivational interviewing, a specific evidence-based practice. In addition to identifying counselor characteristics associated with use of MI, this study explores how counselor characteristics directly and indirectly affect implementation relationships for MI. The study sample comes from a larger study testing how organizational facilitation influences outpatient substance abuse counselors' use of MI, and client outcomes. Multiple regression was used to explore the contribution of counselor characteristics (amount of

MI training, MI skill level, motivation to use MI, supportive attitudes toward MI, perception of organizational climate and MI skill level) on reported use of MI. Analyses with each dependent variable had different sample sizes: N=76 for relationships tested between counselor characteristics and use of MI and N=46 for relationships tested between counselor characteristics and MI skill level. Results suggest that among these characteristics, supportive attitudes related to MI and motivation to use MI significantly contribute to counselors' use of MI with clients. Further, supportive attitudes related to MI and motivation to use MI each partially mediates the relationship between amount of MI training and counselor use of MI. But, findings are tempered by a sample comprised of relatively low levels of training and low MI skill level. Despite having very little training, and low skill levels, high usage of MI was reported by counselors. More empirical research utilizing larger samples with higher training levels is needed to better understand how counselor characteristics may affect EBPs implementation in order to promote the *effective* use of evidence-based practices.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

1.1. Problem Statement

Evidence-based practice is a dominant practice framework in social work, and is commonly considered the most effective and ethical way for social workers to help their clients (Mullen, Bledsoe, & Bellamy, 2008; Rubin, 2008). *Evidence-based practice* (EBP) involves "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of clients" (Gibbs & Gambrill, 2002, p. 452). EBP has received considerable attention by the profession, including development of conceptual models of the process, textbooks' revision to promote EBP in social work curricula, and general discussion of its importance as well as delineation of barriers to its use (Gilgun, 2005; Pollio, 2006). Although this attention is important for increasing the use of the EBP *process*, less attention has been devoted to understanding how to successfully implement specific evidence-based practices (EBPs), or empirically supported interventions (ESIs), by social workers (Proctor & Rosen, 2008). The quality with which EBPs are provided to clients is a necessary component for them to achieve their intended effects (Schoenwald, Sheidow & Letourneau, 2004). Limited research has been undertaken to understand the implementation of motivational interviewing, the evidence-based practice that is the focus of this study.

Research has considered various factors in the treatment context that contribute to client outcomes (besides the treatment approach used), such as client characteristics

1

(Project MATCH Research Group, 1993) and common factors such as therapeutic alliance (Ilgen, McKellar, Moos & Finney, 2006; Lambert, 2004). Comparatively little research has been done in the area of practitioner characteristics as they impact treatment outcomes (Najavits, Crits-Christoph, & Dierberger, 2000), and very little research exists regarding their role in evidence-based practices implementation. Oten, the treatment approach (e.g., cognitive behavioral therapy, solution-focused therapy) is the experimental focus of clinical trials. In the area of effectiveness research, there is not enough research indicating whether "research-based manual-guided behavioral therapies can be implemented in standard clinical practice and whether use of these therapies is associated with improved outcomes" (Carroll, Ball, & Nich et al., 2006, p. 301). Before evidence-based practice can effectively aid clients, more understanding of how to implement EBPs with fidelity in community settings is needed.

To date, there have been only a handful of research studies examining how various practitioner characteristics contribute to implementation of evidence-based practices (Aarons, 2004; Aarons & Sawitzky, 2006; Nelson & Steele, 2007). *Implementation* refers to "the use or employment by practitioners of pretested and empirically supported treatments (ESTs) to attain outcomes" (Proctor & Rosen, 2008, p. 285). The current study uses the term EBPs to refer to ESTs. There is limited research examining the role of individual practitioner characteristics in predicting practitioners' use of evidence-based practices, although conceptual and theoretical models of evidence-based practice and evidence-based practice implementation include these characteristics. Most training and implementation research describes the characteristics of the

practitioners they study, but most studies have not empirically tested how these characteristics relate to practitioners' adoption of new practices. Further understanding of the role of practitioner characteristics in evidence-based practice implementation is needed in order to provide the supports necessary to ensure the transportability of evidence-based practices. In the same way that clinical research attempts to identify contextually and or culturally–specific evidence-based interventions to help clients make changes in their lives, organizations and people within organizations require specific evidence-based approaches to support their change efforts (Luongo, 2007).

For the evidence-based practice process to show effectiveness for improving client outcomes, more understanding is needed regarding how to effectively transfer practices with research evidence to practice settings. Implementation of evidence-based practices requires further study if we are to learn how they can best benefit clients (Mullen et al., 2008). Improvements in education, training and implementation methods can ensure that workers competently deliver evidence-based practices (EBPs).

1.2. Social Work Standards Related to Evidence-based Practice

Social work promotes the importance of evidence-based practice in its professional standards and code of ethics. The Educational Policy and Accreditation Standards, developed by the Council on Social Work Education (CSWE) used to accredit baccalaureate- and master's-level social work programs, contain information relevant to evidence-based practice. Educational Policy 2.1.10 (a) – (d) states that "social workers have the knowledge and skills to practice with individuals, families, groups, organizations, and communities," and that, "practice knowledge includes identifying,

analyzing, and implementing evidence-based interventions designed to achieve client goals, using research and technological advances; evaluating program outcomes and practice effectiveness…"(Council on Social Work Education, 2008). This standard addresses the complete practice process, from selecting an appropriate intervention to evaluating practice effectiveness.

While evaluating practice effectiveness is essential for effective implementation, *initial* evaluation to ensure practitioner proficiency prior to its use in practice has not been addressed in the five-step evidence-based practice framework (described below). Unless practices are delivered with the same fidelity as they were provided in research settings, they cannot be expected to achieve the same level of outcomes for clients in practice settings. The National Association of Social Worker's (NASW) Code of Ethics, Ethical Standard (1) Social Workers' Ethical Responsibilities to Clients, Section 1.04 instructs workers regarding their practice competence:

> (a) Social workers should provide services and represent themselves as competent only within the boundaries of their education, training, license, certification, consultation received, supervised experience, or other relevant professional experience.
>
> (b) Social workers should provide services in substantive areas or use intervention techniques or approaches that are new to them only after engaging in appropriate study, training, consultation, and supervision from people who are competent in those interventions or techniques.

(c) When generally recognized standards do not exist with respect to an emerging

area of practice, social workers should exercise careful judgment and take

responsible steps (including appropriate education, research, training,

consultation, and supervision) to ensure the competence of their work and to

protect clients from harm. (NASW, 2009, Social Workers' Ethical

Responsibilities to Clients, 3)

As the "Road Ahead" report (U.S. Department of Health and Human Services, 2006)

indicates, "currently, too few mental health graduate training programs devote adequate

time to education on evidence-based methods of diagnosis, treatment, or evaluation" (p.

17, cited in Proctor, 2007). Without sufficient preparation in evidence-based practices,

social workers' use of the evidence-based practice framework may be well intentioned

but lack necessary components to fulfill its promise of improving client outcomes.

1.3. Lack of Implementation Research

In the past 30 years, there have been close to sixty thousand experimental studies

of effective interventions in physical and behavioral health, but only about 100

experimental studies of factors that affect implementation of those treatments (Fixsen,

Blase, Naoom, & Wallace, 2007). There is a significant gap in the availability of research

of EBP implementation (Aarons & Sawitzky, 2006; Glisson & Schoenwald, 2005;

Schoenwald & Hoagwood, 2001). Effective intervention practices must be paired with

effective *implementation* practices in order to offer clients the best chance of benefitting

from treatment services. *Implementation research* refers to the "production of knowledge

that can aid practitioners to actually use and apply responsibly and reliably in practice the products of intervention research" (Proctor & Rosen, 2008, p. 287).

There is recognition within social work for the need for implementation research. Proctor (2004) reports there is a paucity of implementation research for evidence-based practices, and, "the next frontier in advancing the quality of care in the fields of behavioral health and social service is developing an understanding of how to disseminate and implement evidence-based practices so that they are indeed used and made available to clients" (p. 228).

Many have recognized that the transfer of research findings to the field involves consideration of practice contexts (Fixsen, Naoom, Blase, Friedman, & Wallas, 2005; Kitson, Harvey, & McCormack, 1998; Regher, Stern, & Shlonsky, 2007). Practice contexts encompass the extent that practitioners possess the skills needed to implement evidence-based practices (Rubin, 2008). They also involve supervisory and financial encouragement of practitioners' training in and use of evidence-based practices. In addition, research has shown that practitioner perceptions of the workplace, such as organizational support for changes in practice, and organizational climate have been shown to be important factors affecting practitioners' willingness to learn about new practices (Glisson & Hemmelgarn, 1998).

1.4. Challenges of Implementing Evidence-based Practices

The challenges of implementing evidence-based practices in social work settings have received attention in the child welfare, mental health and substance abuse research fields, and among community-based agencies (Franklin & Hopson, 2007). In each of

these fields, organizational context (including turnover, resources, and time), worker attitudes, skills and training have been identified as barriers to successful implementation.

Understanding what constitutes *successful implementation* of an EBP is not fully conceptualized in the field. Often, practitioners' self-reported use of specific EBPs constitutes implementation. Others call for more nuanced assessment of use, with attention to fidelity, adaptations, and assessment of client outcomes (Orwin, 2000). Fixsen and colleagues (2005) define *implementation* as, "a specified set of activities designed to put into practice an activity or program of known dimensions…. implementation processes are purposeful and are described in sufficient detail such that independent observers can detect the presence and strength of the "specific set of activities" related to implementation" (p. 5). Mullen et al. (2008) explain that,

> Success of the transfer has been largely assessed based on structural measures (e.g., counts of personnel or contacts) or other outcome measures that do not specifically assess how the intervention was implemented or whether the implementation maintained fidelity to the original conceptualization and intent of the intervention. How interventions or models of practice can be transported to real-world practice settings is an implementation question. Conceptual frameworks that take into account the resources of local settings and the needs of multiple stakeholders, are required to create and monitor successful implementation strategies. (p. 328)

This recognition of the need for conceptual frameworks that consider local contexts also indicates the need for models based in research that can further guide implementation efforts.

1.5. Study Goals, Aims, and Hypotheses

The purpose of this study is to better understand how counselor characteristics influence the use of a specific evidence-based practice-- motivational interviewing. Specifically, this study examines three research questions: (1) To what extent do the amount of counselors' training in MI, supportive attitudes related to MI, motivation to use MI, and perceptions of organizational climate relate to counselors' MI skill level? (2) To what extent do these counselor characteristics relate to self-reported use of MI with clients? And (3) To what extent do counselor characteristics mediate relationships between (1) amount of counselors' training in MI and MI skill level; (2) amount of counselors' training in MI and their use of MI; and (3) counselors' MI skill level and use of MI? The following six study aims and 17 hypotheses explore these questions.

Aim 1. The first aim examines the relationship between amount of training in MI and MI skill level. Training in an evidence-based practice is commonly regarded as an important way to increase skill in a practice and to subsequently increase use of an evidence-based practice. Training is a common component in conceptual models of evidence-based practice. The motivational interviewing research literature is rich with evaluation of training programs and supervision techniques to increase MI skill. The following four hypotheses explore direct and indirect relationships between *Amount of MI Training* and *MI Skill Level*.

Hypothesis 1a: *Amount of MI Training* is positively related to *MI Skill Level*.
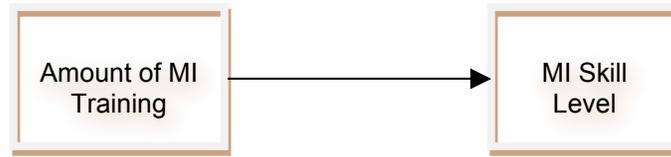
Hypothesis 1b: *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

Hypothesis 1c: *Organizational Climate* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

Hypothesis 1d: *Supportive Attitudes related to MI* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

```
┌──────────────┐                    ┌──────────────┐
│ Amount of MI │───────────────────▶│   MI Skill   │
│   Training   │                    │    Level     │
└──────┬───────┘                    └──────────────┘
       │                              ▲
       │        ┌──────────────┐      │
       └───────▶│  Supportive  │──────┘
                │   Attitudes  │
                │  related to MI│
                └──────────────┘
```
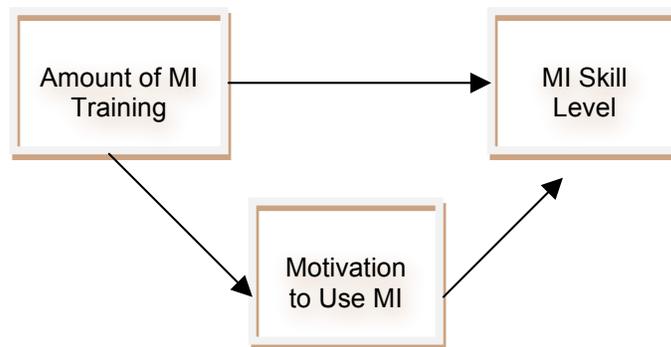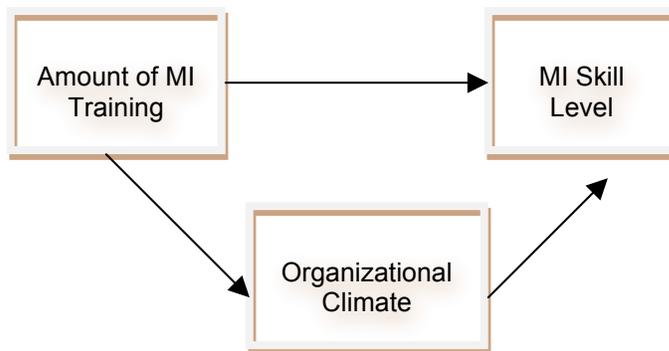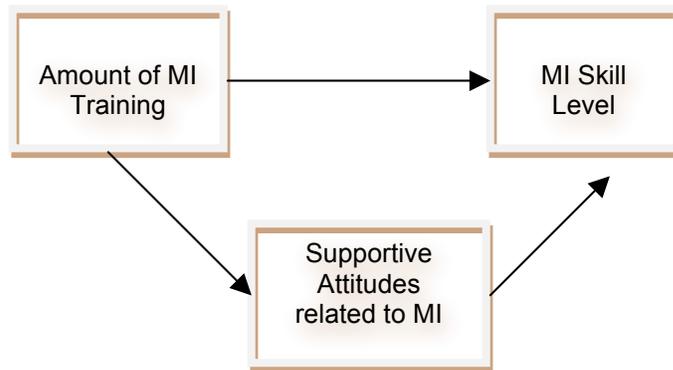
Aim 2. The second aim seeks to understand how counselors' MI skill level relates to their self-reported use of motivational interviewing with their clients. Presumably, counselors with lower skill would report less use of a practice than counselors more highly skilled in MI. The following four hypotheses explore direct and indirect relationships between *MI Skill Level* and *Use of MI*.

Hypothesis 2a: *MI Skill Level* is positively related to the *Use of MI*.

```
┌──────────────┐                    ┌──────────────┐
│ MI Skill Level│───────────────────▶│   Use of MI  │
└──────────────┘                    └──────────────┘
```

Hypothesis 2b: *Motivation to Use MI* mediates the relationship between *MI Skill Level* and *Use of MI*.

```
┌──────────────┐                    ┌──────────────┐
│   MI Skill   │───────────────────▶│   Use of MI  │
│    Level     │                    └──────────────┘
└──────┬───────┘   ┌──────────────┐   ▲
       │           │ Motivation to│   │
       └──────────▶│    Use MI    │───┘
                   └──────────────┘
```
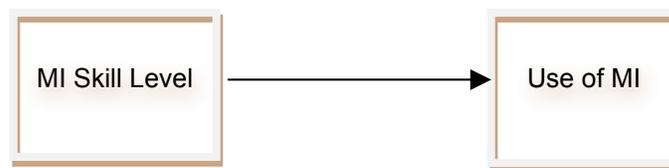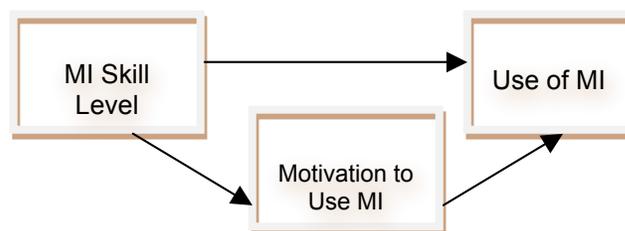
Hypothesis 2c: *Organizational Climate* mediates the relationship between *MI Skill Level* and *Use of MI*.
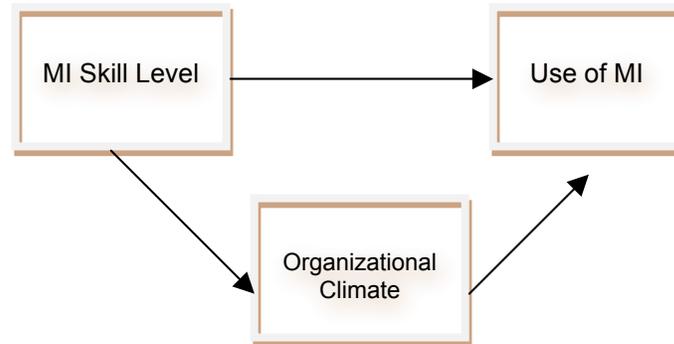
Hypothesis 2d: *Supportive Attitudes related to MI* mediates the relationship between *MI Skill Level* and *Use of MI*.
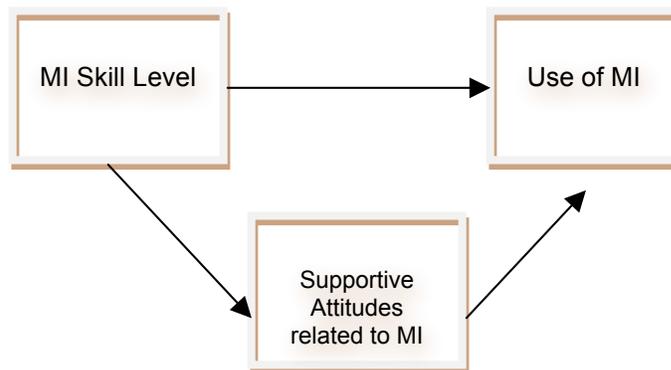
Aim 3. The third aim explores how training in MI is related to use of MI. In models of evidence-based practices implementation, training is an important part of implementation. The following five hypotheses explore direct and indirect relationships between *Amount of MI Training* and *Use of MI*.

Hypothesis 3a: *Amount of MI Training* is positively related to *Use of MI*.
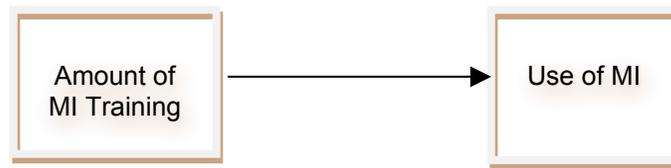
Hypothesis 3b: *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *Use of MI*.
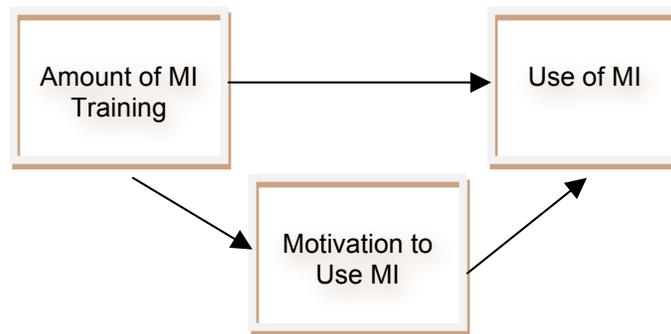
Hypothesis 3c: *Organizational Climate* mediates the relationship between *Amount of MI Training* and *Use of MI*.
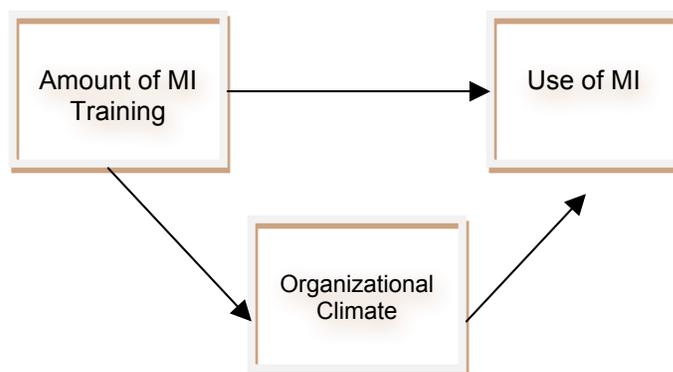
Hypothesis 3d: *Supportive Attitudes related to MI* mediates the relationship between *Amount of MI Training* and *Use of MI*.

Hypothesis 3e: *MI Skill Level* mediates the relationship between *Amount of MI Training* and *Use of MI*.
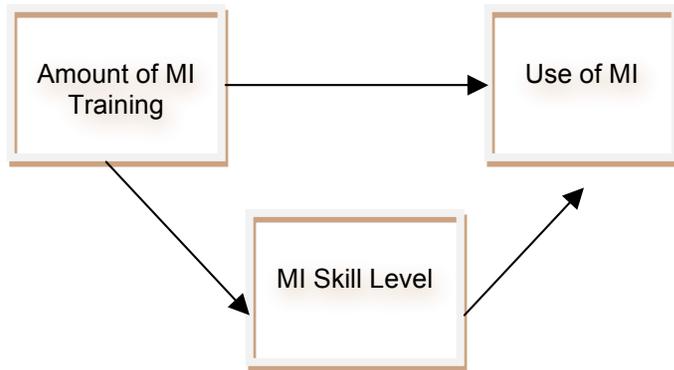
Aim 4. Understanding counselors' motivation to use MI is an important consideration in successful implementation of the practice.

Hypothesis 4a: *Motivation to Use MI* is positively related to *MI Skill Level*.
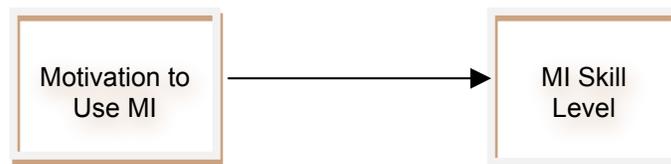
Hypothesis 4b: *Motivation to Use MI* is positively related to *Use of MI*.
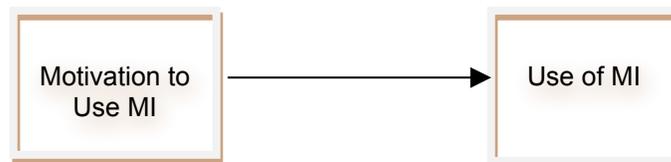
Aim 5. Research has shown that the organizational context within which practitioners provide services can both positively and negatively influence their ability to make changes in their practice. This aim explores direct relationships between *Organizational Climate* and *MI Skill Level* and *Use of MI.* (*Organizational Climate* is tested as a mediator in Aims 1, 2, and 3.)

Hypothesis 5a: *Organizational Climate* is positively related to *MI Skill Level.*

```
┌──────────────┐                    ┌──────────────┐
│ Organizational│ ─────────────────▶│  MI Skill    │
│   Climate     │                    │   Level      │
└──────────────┘                    └──────────────┘
```

Hypothesis 5b: *Organizational Climate* is positively related to *Use of MI.*

```
┌──────────────┐                    ┌──────────────┐
│ Organizational│ ─────────────────▶│  Use of MI   │
│   Climate     │                    │              │
└──────────────┘                    └──────────────┘
```
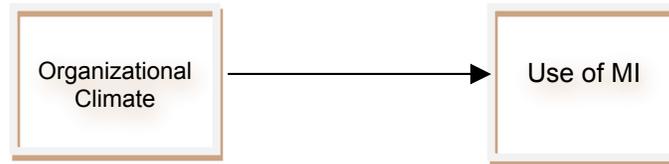
Aim 6. The sixth aim explores how counselors' *Supportive Attitudes related to MI* is associated with *MI Skill Level* and *Use of MI.* (*Supportive Attitudes related to MI* is tested as a mediator in Aims 1, 2, and 3.)

Hypothesis 6a: *Supportive Attitudes related to MI* is related to *MI Skill Level.*

```
┌──────────────┐                    ┌──────────────┐
│  Supportive   │ ─────────────────▶│  MI Skill    │
│  Attitudes    │                    │   Level      │
│ related to MI │                    │              │
└──────────────┘                    └──────────────┘
```

Hypothesis 6b: *Supportive Attitudes related to MI* is related to *Use of MI.*
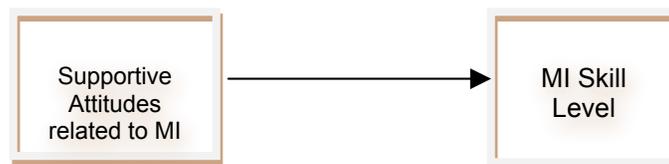
```
┌──────────────┐                    ┌──────────────┐
│  Supportive   │ ─────────────────▶│  Use of MI   │
│  Attitudes    │                    │              │
│ related to MI │                    │              │
└──────────────┘                    └──────────────┘
```
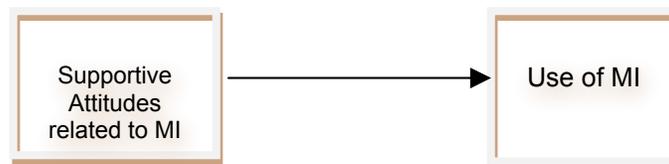
1.6. Study Significance

The significance of this study lies in its attempt to identify relationships between counselor characteristics and use of motivational interviewing. This knowledge should contribute to the emerging literature related to evidence-based practices implementation. Because implementation research in social work is in its infancy, this study has the possibility of raising important areas for future research. By testing relationships between training, skill and use of MI, this study may validate, or suggest revisions to current conceptual models of evidence-based practice implementation. It may also provide evidence needed to build a model of implementation of motivational interviewing. Finally, by understanding how counselor attitudes toward MI, counselors' motivation to use MI, and the organizational climate affect counselor adoption of MI, better implementation efforts for MI can be devised.

In addition, this study is unique in its attempt to:

1. Explore relationships within evidence-based practice models for MI, a specific evidence-based practice.

2. Explore the role of skill level in implementing MI by testing it as a mediator of relationships between MI training, MI skill level and use of MI. This study uses a standardized measure of skill, which is not currently an explicit part of evidence-based practice implementation models.

3. Test whether motivation to use MI, perception of organizational climate, skill level, and/or supportive attitudes toward MI mediate relationships in the implementation process.

Chapter 2

Literature Review

2.1. Overview

The following review of research literature provides a backdrop for the current study. First, it begins by discussing the state of evidence-based practice in social work higher education. Second, it describes models of evidence-based practice and models of evidence-based practices implementation that have been put forth by social work. The research basis for the models is discussed and individual practitioner characteristics are identified as contributors to EBP usage. Support within the models for study aims is identified. Third, the review describes available research for each of the practitioner characteristics believed to affect use of EBPs: training, skill, attitudes toward EBPs, organizational climate, and Motivation to use a practice. Fourth, the review examines literature regarding motivational interviewing that addresses relationships explored in the study's aims. Finally, the review summarizes gaps in the social work research literature regarding the role of practitioner characteristics in the implementation of evidence-based practices.

2.2. Evidence-based Practice in Social Work Higher Education

Evidence-based practice is a recommended practice framework (Mullen et al., 2008) that is taught in many social work programs. Significant attention has been given to the need to improve the pedagogy of the evidence-based practice process in social work programs to ensure that social workers are offering the best available treatment to

their clients (Franklin, 2007; Mullen, Bellamy, Bledsoe & Francois, 2006; Proctor, 2007; Rubin, 2008; Shlonsky, 2004; Springer, 2007). This includes incorporating EBP into classroom teaching and into practicum instruction. A great deal has been published regarding teaching the evidence-based practice process. In fact, the George Warren Brown School of Social Work at Washington University has made evidence-based practice the organizational framework for its graduate curriculum (Howard, McMillen, & Pollio, 2003).

Compared to the attention given to incorporating EBP throughout social work higher education, less attention has been given to the need for skill development in specific EBPs. Unless practitioners are sufficiently prepared to offer evidence-based treatments and practices, use of the EBP process may not yield its intended purpose. As Proctor reports (2007):

Most providers cite graduate school as the source of their initial training in EBP (Walrath, Sheehan, Holden, Hernandez, & Blau, 2006). But schools of social work are not mandated to provide training in EBP, and most schools do not disseminate EBPs or train practitioners for their use (Weissman et al., 2006). Thus, social work education shares culpability for the nation's insufficient supply of EBP-trained practitioners. (p. 587)

She admits that, "Teaching students to actually implement EBPs with fidelity is particularly challenging and will likely require particular resources, including intervention and training manuals, fidelity measures, and outcomes measures that are specific to the particular practice being taught" (p. 587). In general, there is a gap in the

research literature addressing the role of treatment fidelity in the successful implementation of evidence-based practice (Gambrill, 1999; McHugo et al., 2007; Schoenwald et al., 2000), and social work pedagogical practices seem unprepared to support the "EBP revolution" (Howard et al., 2007). Despite the lack of research on the role of skill in EBPs implementation, scholars note its importance both in education and in implementation (Franklin & Hopson, 2007; Howard et al., 2007).

During the 2006 *Improving the Teaching of Evidence-based Practice* symposium hosted by the University of Texas at Austin School of Social Work, implementation challenges were raised. Franklin (2007) recognized the current model of social work education does not offer the "gold standard" of education that would support the experiential learning required for students to provide EBPs. Several strategies for improving how students integrate classroom knowledge into service settings were suggested. These include building agency/university partnerships that will support initial instruction in a practice in the classroom with follow up and supervision in field settings, and providing faculty with professional development around EBPs (Proctor, 2007).

Many social work scholars have written about methods for improving social work's teaching of evidence-based practice. Springer (2007) outlines issues facing the teaching of evidence-based practice in social work higher education. Among them, he notes that there is no consensus in social work on exactly what comprises "evidence-based practice." Second, he points to the complexity of EBP, which makes it necessarily challenging to teach. He promotes modeling the EBP process in the classroom as the most effective way to transmit its principles and techniques to students. Recently, Rubin

(2008) published a textbook with detailed guidance on evidence-based practice by social workers. A practical guide (Gibbs, 2003) to using evidence-based practices in the helping profession is widely used. Shlonsky and Stern (2007) offer practical lessons for the classroom and offer advice on how to marry this learning with field experiences.

2.2.a. The Evidence-based Practice Process

As described above, social work programs have integrated evidence-based practice content into their curricula. This primarily includes instruction in the five-step EBP process:

1. Formulate an answerable practice question;

2. Search for best research evidence;

3. Critically appraise the research evidence;

4. Select the best intervention after integrating the research evidence with client characteristics, preferences and values, and based on individual practitioner expertise;

5. Evaluate practice decisions (e.g., Mullen, 2004, 2006; Thyer, 2004).

Studies evaluating the ability to teach this process to students and social workers indicate that students and social workers can effectively learn and apply the 5-step evidence-based practice process to identify evidence-based practices that are appropriate for specific clients (Gira, Kessler & Poertner, 2004; Mullen et al., 2008; Parrish, 2008; Thyer, 2002).

Step four of the EBP process is of particular interest to the current study. This step is a critical one during which practitioners consider the extent to which a practice

indicated by the literature is supported by the current practice context, including their skill in a practice. Yet, the instruction to, "integrate appraisal of research evidence with one's clinical expertise" is not a self-evident or simple process. Furthermore, clinical expertise is usually interpreted as practice wisdom, or clinical judgment. More understanding of how workers consider their own clinical expertise is needed. For example, does clinical expertise imply previously developed practice skills, or expertise regarding appropriate treatment approaches in which one may or may not be skilled? Does it imply that receipt of training in the technique assures that one is ready to practice it? How should the clinician assess her own skill set against what is required to effectively implement the EBP?

This study aims to direct more attention to understanding this crucial fourth step in the evidence-based practice process to effectively guide practitioners. The fourth step of the evidence-based practice process instructs practitioners to select the best intervention after integrating research evidence with client characteristics, preferences and values, and to base selection of the intervention on individual practitioner expertise. Rubin (2008) cautions that a social worker's caseload demands may prevent time needed to obtain skills necessary to provide the intervention identified in the research literature. He presents several options to take when one is not sufficiently skilled in an evidence-based practice indicated by the literature, including: (1) refer to treatment manuals and seek assistance from colleagues regarding how to deliver a practice; (2) seek training and supervision in the practice with the best evidence; (3) refer a client to a social worker

who possesses the necessary skill to offer the practice; or (4) use a different practice in which one is skilled that also has credible evidence.

2.2.b. Teaching of Evidence-based Practices for Social Work Practice

While learning how to engage in the evidence-based practice process is important for evidence-based practice according to the 5-step process (Gibbs & Gambrill, 2002), the extent that students are being taught to proficiently deliver evidence-based practices within specific social work practice concentrations is unclear. In a recent survey of directors from 221 training programs in psychiatry, psychology, and master's-level social work, Weissman and colleagues (2006) found that sixty-two percent of social work programs did not require both didactic *and* clinical supervision in any evidence-based therapy.

Further, Woody, D'Souza, and Dartman (2006) report survey results based on surveys of 66 (of 165) program deans and directors (or their designees) of Master's of social work programs. Only 26 programs (or less than half the study's sample) reported teaching specific empirically-supported intervention (ESI) content, and of the 31 who endorsed teaching ESI content, very few required ESI training materials that would support teaching skills and techniques of the interventions. Certain program characteristics were related to support for teaching ESIs, including: high informal faculty commitment, high program commitment by faculty, and an emphasis on behavioral theories.

In social work substance abuse concentrations in particular, general competencies are promoted such as interviewing and assessment, but students' development of specific

practice skills has not been prioritized (Barsky & Coleman, 2001). Bina et al. (2008) examined predictors of MSW graduates' perceptions of preparedness to practice in substance abuse practice areas. Perceptions of preparedness were positively associated with more formal academic training in substance abuse and higher knowledge of substance abuse concepts and models. The authors conclude that more substance abuse content is needed in social work curricula.

This need to provide students with course work and experiences to gain competency in evidence-based practices has been duly noted by the profession. Mullen, et al. (2006) outline two recommendations pertaining to skill development in evidence-based practices:

(1) An aim of every school of social work should be to require students to develop a beginning level of competence in the practice of those empirically supported assessment tools and interventions of direct relevance to their area of specialization. This will require both didactic training in the classroom and coordinated practicum training in fieldwork. Accordingly, where training capacity does not already exist, schools and practicum agencies will need to invest in training programs designed to prepare field instructors for the teaching of evidence-based practices.

(2) To make possible student training in EBP that meets the gold standard, field practicum instructors will need to be provided with EBP training and other supports so as to facilitate their capacity to provide EBP training in actual agency environments. Continuing education programs and field practicum educators should consider joining resources to foster EBP in agencies. (p. 16-17)

Clearly there is recognition that to improve social work's involvement in evidence-based practice, social work higher education will need to consider different pedagogical approaches. This will require curriculum revision as well as cultural changes among social work programs and different types of partnerships with community agencies where students gain invaluable practice experience (Franklin & Hopson, 2007; Proctor, 2006).

Although the EBP process calls for consideration of clinical expertise, explicit guidelines on the need to assess one's own skill prior to delivery, and how to assess one's abilities, have not been developed. Receipt of university or continuing education training alone does not guarantee competency in evidence-based practices. Further, knowledge of evidence–based research does not translate into the skills needed to transfer evidence-based practices into clinical settings (Miller, Sorenson, Selzer, & Brigham, 2006).

To improve social work's use of research knowledge, and to move closer to achieving the outcomes achieved during research, social work education should give further attention to skill development, skill assessment, and how the service delivery context influences implementation of the evidence-based practice process as well as specific evidence-based practices.

2.3. Models of Evidence-based Practice in Social Work

2.3.a. The EBP Process Framework

The basic evidence-based practice framework was originally presented as a Venn diagram (Haynes, Devereaux, & Guyatt, 2002). See Figure 2.1, below. The diagram is comprised of three interlocking spheres of information (current best evidence, client

values and expectations, and practitioner's own clinical expertise) that a practitioner must

consider when selecting a practice approach (Shlonsky & Gibbs, 2004).

Figure 2.1

Evidence-based Practice Framework
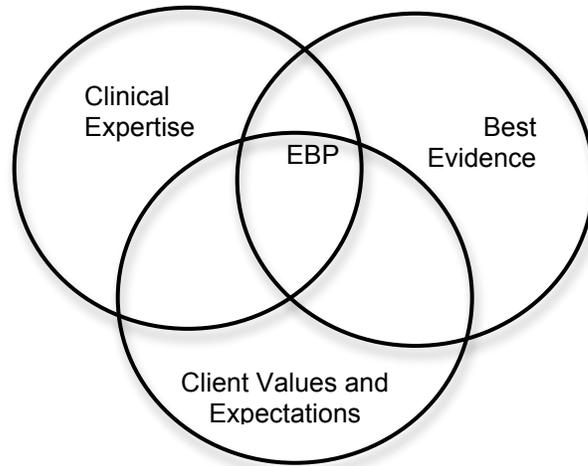
Social workers evaluate the evidence base for many possible practice choices in order to

select the practice that has the "best likelihood of being effective" (Rubin, 2008, p. 29).

They also must consider client values and expectations regarding each possible treatment

option when discussing treatment options with them, and finally, consider their own

clinical expertise.

From this model, originally published by Sackett et al. (1996) in the field of

medicine, various models of the evidence-based practice process within social work have

been described. These include Rosen's (2003) practice guidelines for intervention,

Proctor's (2004) leverage points for implementation, and later, her principles, strategies,

and partnerships (2007), and the Regehr et al. (2007) elements of evidence-based policy

and practice. Many other social work scholars have written about evidence-based

practice, but the models included and discussed here represent those aimed at

conceptualizing how to implement EBP. These are each described and compared below. Salient aspects of each are discussed as they inform the current study's aims.

2.3.b. Rosen's Practice Guidelines for Intervention

Rosen (2003) presents four elements of EBP to improve the translation of research to practice, by (1) approaching treatment systematically, (2) using practitioner-friendly tools to locate the best empirically supported interventions, (3) giving appropriate weight to the credibility of the research, and making modifications as necessary, and (4) supplementing or supplanting the intervention for best fit. He recognizes the role of practitioner-based knowledge and recommends its use when making modifications of an EBP for local situations. The model draws from three other forms of practice—systematic planned practice, single-system designs, and practice guidelines. *Systematic planned practice* involves problem formulation, assessment, setting of treatment priorities, and deciding on treatment goals. *Single-system designs* require that practitioners define all outcomes operationally, use standardized outcome measures with acceptable reliability and validity, measure outcomes with standardized scales, and use feedback to examine the potency of an intervention as effective or whether it should be altered or replaced. He recommends that *practice guidelines* for interventions contain taxonomy of outcome targets of intervention, ranges of alternative interventions, matching of interventions to specific client needs and circumstances, and provision of a decision tree to make final intervention choices. Rosen's model underscores the importance of evaluating practice to ensure that use of evidence-based practices are meeting anticipated client outcomes, and the need to adapt and revise

interventions as outcomes indicate. Rosen's model does not directly relate to the study's aims, but implicitly assumes that practitioners are skilled in an evidence-based practice when they are engaged in the evidence-based practice process. Aim 3 tests this assumption be exploring how practitioner skill may influence other implementation relationships.

2.3.c. Proctor's Leverage Points for the Implementation of EBP

Proctor's (2004) "leverage points" for implementation of EBP recognizes other influences on implementation beyond clinician involvement in identifying and appraising relevant evidence. These include professional training, a professions' research infrastructure, and the organizational culture of service agencies. Proctor recognizes that intermediate outcomes within the EBP process are necessary in order for the process to lead to client outcomes. These intermediate outcomes include identification of and access to evidence-based practices, attitudes toward evidence/decision to adopt an EBP, implementation of EBPs, and assessment of their usefulness. In her model, each intermediate outcome should be a target for change through interventions that affect practitioners through better dissemination of research, better training in EBPs, and recognition of influential factors in organizational cultures that affect adoption and support ongoing use of EBPs. She draws from Rogers' (2003) Diffusion of Innovation theory as a basis for considering practitioner perceptions about new practices as a factor affecting successful adoption of them, including the advantage they offer, relevance, congruency with client values and level of complexity of the practice.

In an updated version of her 'leverage points' model Proctor (2007) describes

ways that social work programs and community agencies can forge partnerships that will aid in EBP implementation. She delineates social work program contributions to the intermediate outcome of implementing EBPs in practice: ensuring that intervention components are clearly detailed, that treatment manuals exist, that training addresses specific skills required to implement EBPs, and that training addresses multilevel strategies, and finally, that consideration is given to fit and adaptation for specific clients and settings.

Proctor's model supports the inclusion of five of this study's aims. She recommends training in specific skills to implement EBPs as an essential element of the practice infrastructure to support implementation (Aims 1, 2, and 3). She regards counselor perceptions about the new practice to be influential to their use of it (Aim 4). To support implementation, she points to aspects of the organizational culture: agency leaders' commitment, supervisor commitment, knowledge and support, training manuals, incentives and rewards for practitioners (Aim 5).

2.3.d. Regehr, Stern & Shlonksy's Elements of Evidence-based Policy and Practice

The Regehr et al. (2007) evidence-based practice model attempts to operationalize EBP as part of the development of an institute of evidence-based social work at the University of Toronto. The model is adapted from Haynes, Devereaux, & Guyatt, 2002. Their conceptualization of EBP takes into account the broader ecological context that may affect adoption of an EBP, and illustrates the centrality of professional expertise. The model includes extraorganizational influences such as political, economic, professional and socio/historical contexts that are illustrated as a large box surrounding a

28

smaller box framed by intraorganizational influences: community, organizational mandate, organizational resources, and training/supervision. Within the smaller box, an adapted version of the EBP diagram redefines clinical expertise as professional expertise, and places professional expertise in the intersection of client state and circumstances, client preferences and actions, and research evidence. The model is presented as Figure 2.2, below. The model recognizes the "emerging research on the ecological influences that may affect moving from evidence to practice such as intraorganizational, extraorganizational, and practitioner-level factors" (p. 410).

Figure 2.2.

Regehr et al. (2007) Elements of Evidence-based Policy and Practice
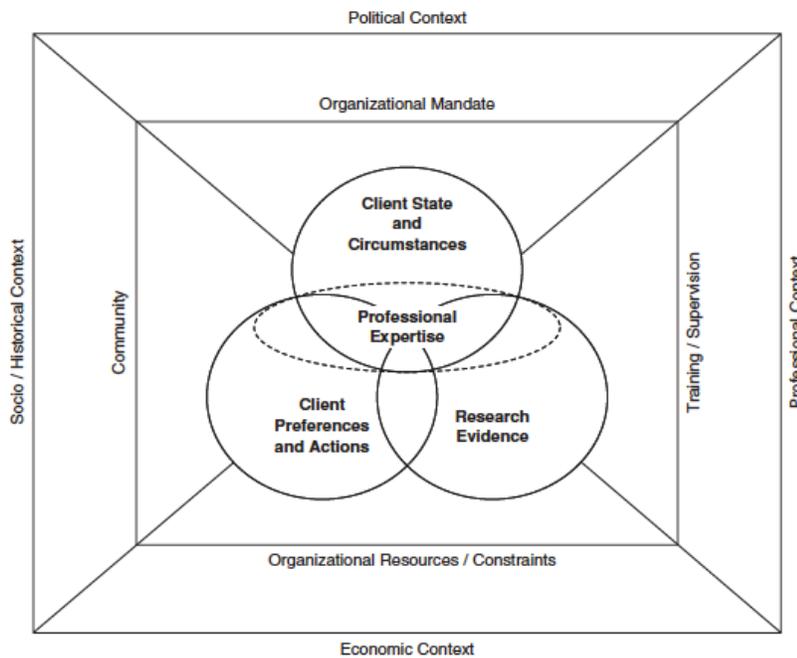
Note. Adapted from Haynes, Devereaux, & Guyatt (2002) by Regehr et al. (2007)

This enhanced model makes clear that the use of EBPs is likely affected by

29

training, supervision, professional context, and organizational mandates, supports and constraints. This model offers a theoretical basis for addressing this study's aims related to relationships between training, skill, and organizational climate (Aims 1, 2, 3, and 5).

2.3.e. Summary of EBP Models in Social Work

The models of evidence-based practice discussed above vary in their specificity and level of practice. While Regehr et al. consider the external and organizational influences on agency practice that can influence implementation, Proctor points out the role that practitioner attributes likely play, and Rosen emphasizes the importance of individual's practice evaluation as a means to assess outcomes and thereby evaluate implementation.

The Regehr et al. model is aimed at implementation of EBP, or "the process of posing a question, searching for and evaluating the evidence, and applying the evidence within a client- or policy-specific context" (p. 410). The Proctor and Rosen models are more conceptual in nature, and focus on defining the elements involved in EBP rather than on influences that affect EBP.

Two of these models point to the importance of training in specific evidence-based practices. Proctor recommends additional training in EBPs for better practice, while Regehr et al. (2007) include training/supervision as an element of EBP. None of these models emphasizes counselor skill in an EBP. They seem to assume that training will provide the necessary skill for implementation of EBPs. Only Rosen (2003) suggests that practitioners self-assess whether they possess the necessary skill to implement an EBP and he also emphasizes the role of counselor-based knowledge in making needed

modifications for local implementation of EBPs. The Regehr et al. model focuses on organizational influences affecting EBP implementation more than the Proctor model, and the Rosen model does not address the organizational context. All of the models indicate the importance of assessing practice outcomes as a final step in EBP implementation.

2.4. Evidence-based Practices Implementation Models

This section will describe three current models for implementation of evidence-based practices. In some cases, the models are based on reviews of research, or are based in emerging research. Compared to the evidence-based practice models in the previous section, these models focus on specific elements involved in implementation. For this review, models are considered *implementation* models when they recognize the importance of contextual factors that influence the success of implementation efforts (Fixsen et al., 2005; Glisson, 2007; Simpson & Flynn, 2007). The section begins by reviewing Rogers' Diffusion of Innovation Theory, a theory that provides some conceptual ways of understanding adoption of new practices during implementation.

2.4.a. Rogers' Diffusion of Innovation Theory

Many scholars of evidence-based practice implementation employ Rogers' (2003) Diffusion of Innovation theory in their discussion of EBP adoption and implementation. The theory considers adopter characteristics—including attitudes and information sources, as well as characteristics of the innovation, as important factors influencing

adoption. The theory has been applied widely to understand the diffusion and adoption of many types of technologies, including practices used by human services professionals.

Approximately 5000 studies across diverse academic disciplines over the past six decades have studied the diffusion of innovations. This body of research has led to the development and refinement of a general model of diffusion that can be applied across various settings (Rogers, 2003). In the theory, *diffusion* is defined as, "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5). The theory outlines five steps that individual adopters take when adopting a new practice: 1) developing knowledge about the practice, 2) developing a positive attitude toward it (persuasion), 3) deciding to try the method (decision), 4) engaging in the process of learning how to use it (implementation), and 5) after experiencing success with the practice (confirmation), the practitioner integrates it into routine practice and may encourage others' use of it.

The social context is seen as important for its implicit and explicit support toward a practice. Rogers describes three general categories of adopter attributes that have been shown to influence diffusion: socioeconomic attributes, personality, and communication behavior attributes. Based on decades of research, Rogers presents generalizations for each group of attributes. Regarding socioeconomic attributes, earlier adopters have more years of formal education, higher social status, and have a greater degree of upward social mobility than late adopters. In terms of personality, earlier adopters of new practices have greater empathy, may be less dogmatic, have a greater ability to deal with abstractions, have greater rationality, have more intelligence, have a more favorable

attitude toward change, are better able to cope with uncertainty, have a more favorable attitude toward science, are less fatalistic, and have higher aspirations than later adopters. Related to communication behavior attributes, earlier adopters have more social participation, are more highly interconnected through interpersonal networks in their social systems, are more oriented outside the social system, have more contact with change agents, have more contact with mass media, have greater exposure to interpersonal communication channels, seek information about innovations more actively, have greater knowledge of innovations, and have a higher degree of opinion leadership than later adopters.

In addition to considering adopters' characteristics, Diffusion of Innovation theory addresses the "perceived attributes of innovations" to understand their different rates of adoption. These include an innovation's relative advantage, compatibility, complexity, trialability, and observability. Research has shown these five qualities are the most important in explaining the rate of adoption.

Several components of the Diffusion of Innovation theory are particularly useful in the current study, and support the inclusion of the current study's specific aims: (1) the influence of adopter attributes, (2) the attributes of the innovation, and (3) the influence of the social system on adoption. The diffusion of innovation theory offers support for study aims 5 and 6 regarding how practitioners' attitudes toward a new practice affects their adoption of it and the influence of the organizational context on their work.

2.4.b. TCU Program Change Model

Simpson and colleagues from Texas Christian University (TCU) have devised and tested an organizational change framework for substance abuse treatment centers that focuses on organizational climate and readiness for change. Their approach involves assessing organizational functioning to understand areas where changes are needed in such areas as staff morale, supervision, training and organizational climate prior to implementing new practices. The model offers a stage-based process that begins with the first stage of *Training*. Decisions to attend training are influenced by relevance of the training, accessibility to the training and whether it is accredited so that attendees can receive educational credit for attending. Institutional needs and pressures for using specific practices can also influence training attendance. Following training, *Adoption* is defined as a two-step activity that involves decision-making and "action-taking." Decision-making requires support from agency leadership. Furthermore, the innovation being implemented should be seen as high quality and have utility for the setting. After intentions to adopt an innovation are realized, the next stage is *Action*--to test out the new practice and form opinions about it. Considerations in this stage include capacity and proficiency of the practice to meet expectations. It should also be tested to assess that the practice delivers satisfactory preliminary results. Within the organization, staff capacity and a supportive organizational climate are needed to support the adoption and access stages of the model.

The next stage, *Implementation* depends upon aspects of the organizational climate, including staff motivation, resources from program management, staff attributes,

and program climate and financial resources. The final stage, standard *Practice*, results

from innovations that successfully pass through previous stages (Simpson, Greener, &

Lehman, 2002). Simpson and colleagues have developed a battery of forms that measure

aspects of the models' stages and provide a basis for evaluating implementation of new

practices within substance abuse agencies. Research testing the *TCU Program Change*

Model in the substance abuse field offers evidence of relationships posited by the model

regarding training, organizational climate and intermediate client outcomes. Recent

studies show that organizational climate predicts treatment satisfaction and counselor

rapport (Broome et al., 2007; Greener et al., 2007; & Lehman et al., 2002).

Program staff's satisfaction with training needs affect measures of client

intermediate outcomes such as treatment satisfaction and treatment engagement (Joe et

al., 2007). Baer et al. (2009) found that psychological climate (variation within agencies)

and organizational climate (variation between agencies) affects participants' motivational

interviewing skill acquisition. Simpson & Flynn (2007) studied relationships between

stages of training, adoption, and implementation with program records. Their findings fit

within the overall TCU Program Change Model and predicted staff responsiveness to

workshop training. Favorable organizational functioning scores from the Survey of

Organizational Functioning (SOF) (TCU Institute of Behavioral Research, 2008),

(collected 4 months before training) predicted more positive staff responses to training

activities. The TCU Program Change Model informs study aims 1, 2, 3, and 5. The model

posits that training is necessary to achieve a certain skill level to promote use of a

practice (Aims 1-3); it also indicates the importance of the organizational climate (Aim 5).

2.4.c. Fixsen et al. (2005) Implementation Framework

Fixsen et al. (2005) conducted a review of 22 studies containing experimental designs (randomized group or within subject designs) or meta-analyses of implementation variables. Based on their review, the authors developed a conceptual model for implementation that contains five components: 1) Source; 2) Destination; 3) Communication; 4) Feedback, and 5) Influence. See Figure 2.3 for a graphic display of these five components.

Figure 2.3

Fixsen et al. (2005) Implementation Framework

A Conceptual Framework for Implementation of Defined Practices and Programs
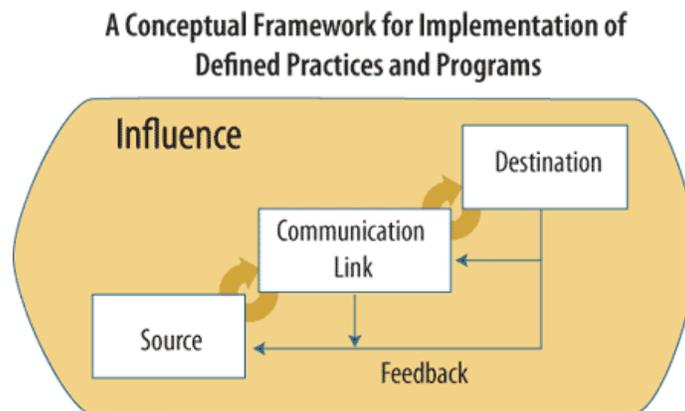
The expected outcomes of the model are: (1) changes in adult professional behavior; (2) changes in organizational structures and cultures; (3) changes in relationships to consumers/stakeholders. The five elements in the model aid in specifying the activities needed to put into practice an activity or program. The framework contains

core components for implementation (also known as implementation drivers) and consists

of a six stage (component) cycle: (1) Selection, (2) Pre-service Training, (3) Consultation

and Coaching, (4) Staff Evaluation, (5) Program Evaluation, and (6) Facilitative

Administrative Supports. This model is shown in Figure 2.4, below.

Figure 2.4

Fixsen et al. (2005) Core Implementation Components

Core Implementation Components
to successfully implement evidence-based practices or practices within evidence-based programs
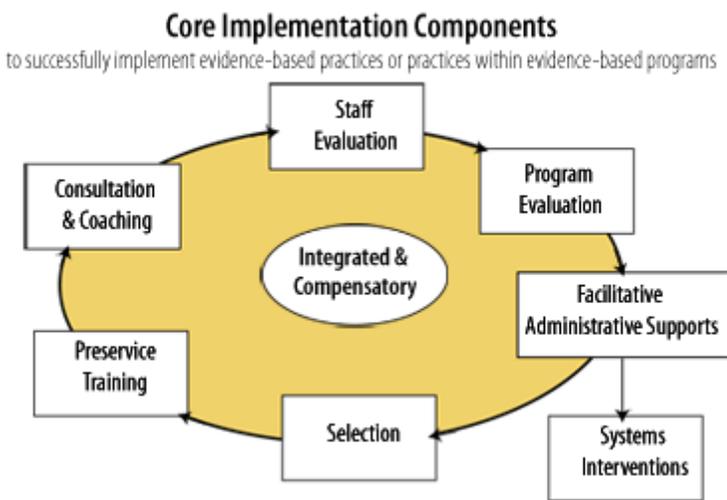
In addition, the model is comprised of three circular bands (appearing as a target).

The central area is *core implementation components* --training, coaching, and

performance measurement; the next band is defined as *organizational components*,

including selection, program evaluation, administration, and systems intervention.

Finally, the outside circle is comprised of *influence factors* that are social, economic and

political.

The implementation model outlines six implementation stages that occur in the process of beginning use of an EBP: exploration and adoption, program installation, initial implementation, full operation, innovation and sustainability. Assessment of implementation of intervention outcomes should be conducted when a program is at full operation, not during initial implementation stages, as the review indicates most evidence-based practices do not have empirically supported fidelity assessments suitable for use when assessing implementation of EBPs in treatment contexts (Fixsen et al., 2005). Innovation is the fifth stage and involves attention to fidelity until fidelity measures reach specific levels most of the time. In this model, innovation is seen as a part of implementation and is seen as adaptive as long as there is not significant drift away from the original intended program/intervention.

This comprehensive implementation model relates to study aims 1, 3, and 5. Based on a review of other implementation studies it identifies implementation stages that include training to impart skill, and to influence adoption of an EBP. It recognizes the important influence of the organizational environment, and the need for organizational change to result in full implementation.

2.4.d. Glisson (2007) Model of Organizational Social Context

Glisson (2007) presents a model for implementation that stems from his research in child welfare. This research indicates that, "organizations establish the social context for services, organizational social context directly affects service quality and outcomes, and organizational social context can be changed with planned organizational interventions" (p. 737). He advocates for a science of implementation effectiveness that

will lead to understanding of "(1) methods for assessing organizational context, (2) dimensions of the organizational context that contribute to implementation of effective services and (3) 'evidence-based' organizational interventions that can create organizational social contents to support this" (p. 737). The model includes three service system domains that affect implementation: 1) consumer domain, 2) technical domain, and 3) organizational domain. The *consumer* domain includes the characteristics, attitudes and behaviors of consumers and their families. Important measures of this domain are treatment alliance, retention in treatment, satisfaction with services and treatment completion. The *technical* domain includes treatment and practice models, such as EBPs, assessment and monitoring tools and training of service providers in the organization. The *organizational* domain includes the organization's culture, climate, work attitudes, and related factors that create the context within which services are delivered.

Glisson (2007) implemented and studied an organizational intervention, the Availability, Responsiveness and Continuity (ARC) for improving the social context of service organizations. It is guided by five principles: mission driven versus rule driven, results oriented versus process oriented, improvement-directed versus status quo oriented, relationship centered versus individual centered, participation based versus authority based. He studied the use of the intervention across one state with 26 case management teams with a randomized, controlled study design. After the 1-year intervention, organizational climate improved significantly and staff turnover was significantly reduced.

Glisson's research findings document an association between organizational climate and service outcomes. He also reports that organizations' social context differ-- as indicated by climate and culture, and that these differences affect provider attitudes, turnover and service quality and service outcomes.

Glisson's model informs study aims 1, 2, 3, 5, and 6. The technical and organizational domains of his model support aims 1-3, and his research indicates the importance of organizational climate on service outcomes. He contends that climate and culture can affect provider attitudes, which in turn can affect service outcomes. He believes that changes in the organizational climate can contribute to implementation of effective services.

2.4.e. Summary of Implementation Models

Common features exist among the three implementation models included in this review. All indicate training is needed as a precursor to implementation, facilitation and consultation aid the implementation process, and assessment of implementation outcomes and practice outcomes are an important measure of implementation success.

Together they recognize a myriad of organizational factors (including financial resources, organizational climate, training opportunities, resources, staff attributes, finances, motivation) that influence implementation. Additional individual practitioner factors include motivation to change, perception of organizational climate, and attitudes toward training. Whereas the Fixsen et al. model is based on a review of implementation literature, Simpson et al. have studied the Program Change Model in community substance abuse centers with survey instruments designed to measure constructs in the

model. Both models conceptualize implementation as taking place in a series of stages. The Glisson model is less well developed in regards to implementation processes but his three domains (consumer, technical, and organizational) mirror the constructs included in the Simpson et al. and Fixsen et al. models.

2.5. Review of Literature of Practitioner Characteristics and Implementation of EBPs

In addition to literature describing models of evidence-based practice and models of evidence-based practices implementation, a small amount of research documents the influence of individual practitioner factors during implementation. Discussion of the influence of practitioner characteristics is often couched in terms of barriers to changes in practice, including practitioner attitudes, job satisfaction, stress, burnout, and lack of training and supervision for effective implementation. Information about barriers is largely based on anecdotal evidence and observations from the field. More research on barriers and facilitators of EBPs usage is needed in social work literature to begin to understand how to address barriers (Mullen et al., 2006). For example, attitudes are often perceived as a barrier, but only a few studies have explored how counselor attitudes toward implementation, or attitudes toward a specific practice, affects their use of it, either negatively or positively (Aarons, 2004; Aarons & Sawitzky, 2006; Nelson & Steele, 2007). Time and resources for training are also mentioned as a barrier, but the extent that training results in effective use of practices, or improved client outcomes, is not well documented. Better understanding of the role of practitioner characteristics in implementation of EBPs may yield better implementation outcomes and practice outcomes.

Whereas clinical trials have examined how use of evidence-based practices (by highly trained practitioners) affects client outcomes (Carroll, et al., 2006; Mullins, et al., 2004), little research has addressed the client outcomes of EBPs implemented by community-based practitioners with variable skill level (Carroll et al., 2006). Skill level has not been considered in research on EBP implementation. Very few evaluations of trainings in EBPs have included measures of skill attainment, and reported use of practices after training. This study addresses the role of skill in relation to other implementation processes (e.g., training, practice use).

Research has identified contextual and organizational variables that influence the quality of services provided and subsequently affect client outcomes (Hemmelgarn, Glisson & James, 2006; Yoo, 2002). Research has also addressed how practitioner perceptions of organizational features influence their job satisfaction, burnout and turnover, as well as client outcomes; research has only begun to address the influence of these perceptions on the use of new practices (Simpson, 2002). Other research has examined how practitioner attitudes about an evidence-based practice influence their willingness to learn about and/or use a practice (Aarons & Sawitzky, 2006; Nelson & Steele, 2007).

The following sub-sections describe the current understanding of several aspects of implementation: practitioner training in evidence-based practices, practitioner skill, organizational context, practitioner attitudes associated with use of evidence-based practices, and readiness to use a new practice.

2.5.a. Practitioner Training in Evidence-based Practices

Effective training is essential if clinicians are to implement empirically validated treatments (Carroll & Rounsaville, 2003). Fixsen et al. (2005) define *training* as "specialized instruction, practice or activities designed to impart greater knowledge and skill" (p. 82). Despite training being a key component in EBP implementation models, research in psychotherapy has not shown a strong correlation between level and type of professional training of providers and client outcomes (Lambert, 2004). This study addresses this gap in understanding by exploring how the amount of MI training relates to MI skill level and use of MI.

Child welfare scholars report the inability of training alone to promote the use of evidence-based practices and research evidence does not exist to support its effectiveness for this goal (Luongo, 2007). Fixsen et al. (2005) also concluded from their review of implementation studies that training alone does not result in effective practice. The following review describes research regarding training from child welfare and in substance abuse fields. It presents findings on how training influences attitudes and recognizes the role of organizational context in supporting training outcomes, and the need for research on follow up and coaching after receipt of training.

Research evaluating training aimed at increasing the effective use of EBPs is occurring in child welfare (Glisson & Hemmelgarn, 1998; Luongo, 2007). These studies have identified several factors affecting the efficacy of training with human service workers, including organizational context and practitioner attitudes. These barriers to transfer of efficacious practices to real-world settings are common despite the specific

client problems being addressed because they are primarily associated with barriers related to practitioner adoption of new practices. Luongo (2007) asserts that training must address these barriers in order to achieve the outcomes that evidence-based practices have attained in research. In a national survey of 214 mental health practitioners, Nelson and Steele (2007) found that training in an EBP (as well as perceived openness of the clinical setting towards EBPs and practitioner's attitudes toward treatment research) were predictors of self-reported EBP use, and Corrigan et al. (2001) reported that training affects attitudes toward a practice.

Within substance abuse treatment, specifically, there has been limited research on the efficacy of training for specific therapeutic approaches. Walters (2005) contends that research on effective training is largely missing with the exception of research on training in motivational interviewing. Methods for training clinicians to provide manual-guided therapies are well established; but it is not known whether "standard methods for training therapists will be feasible or effective when applied to real-world clinicians" (Carroll & Rounsaville, 2003, p. 337). Clinicians in community treatment centers have varied educational backgrounds and the standard training used in clinical trials may not be sufficient to train real-world counselors. Moreover, the extent to which trainings are supported or permitted by a clinical program affects the extent that practitioners use specific practices (Rubin, 2008). Empirical studies of training of various types of clinicians are needed (Carroll & Rounsaville, 2003). Research on which components of specific therapeutic approaches have the greatest clinical impact is needed to inform what to include in training curricula.

Current models of evidence-based practice implementation include training as a precursor to use, and note the need for client assessment to ensure that clients are making progress and benefiting from the practice. But as the research literature on training indicates, there is no guarantee that training imparts the necessary skill required to provide effective services. To ensure that practitioners are ready to offer the best services, more attention must be paid to assessing *practitioners'* skill level prior to and during practice. A stronger focus on quality of service delivery is needed in order for clients to benefit from evidence-based practices.

Because training workshops and seminars are the primary vehicle for transmitting information about evidence-based practices to practitioners (Walters, 2005), they require consideration alongside a discussion of practitioner skill. Much of the current training being offered to practitioners offer opportunities to assess skills after the training and during follow up assessments by trainers. Yet, as Walters (2005) found in his review of studies evaluating behavioral training workshops, although training is effective at improving attendees' knowledge, attitudes, and confidence, the extent to which they improve clinical skills is not well known. This is likely because not all studies of evidence-based practices trainings report assessing practitioner skills after the 1-3 day trainings are over. Eleven of the seventeen evaluations of trainings he reviewed assessed participants' skills with a standardized or actual patient interaction, and assessed competence at posttest only. When measured, skill improvements manifested immediately after training, but were less often maintained over a longer time. Walters recommends the following to maintain skill gains: "Extended contact, through follow-up

consultation, supervision, or feedback"…and consideration of "institutional factors that may influence the extent to which providers adopt new practices" (p. 289).

Surveys of substance abuse counselors indicate they are more likely to learn about new practices through interaction with colleagues, reading on their own or practical experience than through formal workshops or training (Erickson-Pritchard, 1999; cited in Miller, 2006; original source (Master's thesis) not available). Yet, formal training as part of continuing education, or through government-funded training, continue to be the dominant form in which information about substance abuse treatment practices are conveyed to practitioners.

Community mental health practitioners surveyed about barriers to EBP use agreed that without having an expert to confer with about a new practice, they are less likely to use the practice out of fear they are using it incorrectly (Nelson & Steele, 2007). Research is taking place regarding the types of supports needed after receipt of training to maintain skills developed during training. Supports include monitored practice with feedback, having an onsite proficient expert in an evidence-based practice who is available to staff to provide ongoing training, and coaching and supervision. Parrish's (2008) evaluation of a one-day evidence-based practice did not support the efficacy of coaching after training, but very few participants assigned to the coaching study condition took advantage of the assistance. Walters (2005) notes that additional studies of trainings are needed to explore other support scenarios.

One support scenario is the creation of the Ohio Substance Abuse and Mental Illness Coordinating Center of Excellence (Biegel et al., 2003). The center was designed

to offer community agencies training and technical assistance in evidence-based treatment models. The center partners with two schools within Case Western Reserve University to assist service agencies with research and evaluation of their evidence-based programs implementation, including program fidelity and client and system performance outcomes. After the first two years of operation, the center's developers underscore the "importance of training, clinical and programmatic consultation and research and evaluation activities to support the development and maintenance of high fidelity to evidence-based treatment models" (p. 542).

2.5.b. Practitioner Skill

The movement toward the use of evidence-based practices brings with it the need to evaluate practitioners' competence in specific evidence-based practices. In order for these practices "to work," they must be provided with treatment fidelity and skill (Madson & Campbell, 2006). There has not been a strong focus on the need for skill assessment in the literature on evidence-based practice in social work. Yet, many have acknowledged the importance of skill in treatment delivery. McLellan (2002) noted that lack of skilled personnel presents a barrier to adoption of innovations. The main focus of the evidence-based practice framework in social work has been related to the need for practitioners to identify appropriate evidence-based practices for a specific client's problem. More attention to understanding skills required for specific practices would underscore the importance of skill in the process. Counselor competence in specific practices, and the need to assess it, is rarely mentioned among factors affecting evidence-based practice implementation (Kayser, Walker, & Demaio, 2000). This study will

47

explore how skill affects the relationship between receipt of MI training and use of MI.

One of the reasons for the gap in knowledge about necessary skills is due to the fact that research publications often do not describe the interventions in enough detail to replicate them in practice (Proctor, 2004). In addition, research that assesses effectiveness may not dismantle interventions in order to identify core components that influence outcomes more than other aspects of the treatment process (e.g., therapeutic alliance). This becomes extremely important when practitioners attempt to use EBPs. Knowing which EBP to use based on evidence does not necessarily include knowing how to use the intervention, and which components are essential to deliver. Research results need to be reported in ways that provide users with the details necessary to implement a practice with sufficient accuracy to obtain similar results, and perhaps include information on adaptation that may be required for various populations (Fixsen et al., 2005).

Therapist skill may be evaluated in clinical trials as a check for internal validity to ensure that one treatment approach is not being offered by more highly-skilled counselors than the group delivering the comparison treatment approach. For example, research on Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity) has examined skill levels across counselors providing motivational enhancement therapy, 12-step facilitation and cognitive-behavioral treatment (Carroll, Connors, Cooney et al., 1998). Therapist skillfulness and level of therapeutic alliance (assessed on general therapist skill, therapist empathy, and therapist nonverbal behavior by independent raters) were comparable across treatment conditions in Project MATCH.

Related to the concept of skill (used by this study) are the concepts of competency and fidelity. *Fidelity* is defined as, "correspondence between the program [practice] as implemented and the program [practice] as described" (Fixsen et al., 2005, p.82). Within fidelity, treatment adherence and dosage as delivered by the practitioner, have been addressed (Madson & Campbell, 2006; Orwin, 2000). There has been limited recognition of the importance of treatment adherence in EBP (Orwin, 2000; Schoenwald et al., 2000).

Most research addressing the practitioner's role in transfer of research-validated treatments has used the concept of treatment adherence. *Treatment adherence* refers to the extent to which a practitioner delivers a treatment as it was originally conceived (Fixsen et al., 2005). In the context of implementation of EBPs, Orwin (2000) notes how measurement of fidelity improves understanding of how interventions work, helps identify ways to improve them, and suggests better methods of implementation for the future. Treatment adherence is comprised of two concepts: adherence (or integrity) and differentiation. *Adherence* is defined as the extent to which a program was implemented (in terms of delivery and receipt) as it was intended to be (Orwin, 2000), and the extent to which treatments as delivered include original components and may not include other intended ones (Schoenwald et al., 2000). *Differentiation* is defined as the extent to which a program varies from other treatment forms (Orwin, 2000). Adherence should be assessed in order to rule out failure to implement a practice correctly when interpreting lack of positive outcomes (Fixsen et al., 2005; Orwin, 2000).

Fixsen et al. (2005) review treatment adherence (one aspect of fidelity) in implementation research. They bring attention to three aspects of treatment adherence:

context, compliance, and competence. *Context* involves the various prerequisites for a program or practice to operate. *Compliance* is concerned with the extent to which a practitioner uses core intervention components in the EBP. *Competence* is the level of skill shown by the therapist using the core intervention components while delivering treatment to a client. In their review of studies of implementation of many different treatment practices, relationships between fidelity and outcomes were found to be correlational; practices implemented with fidelity had more positive outcomes (Fixsen et al., 2005). The outcomes might also be attributable to therapist enthusiasm, consumer characteristics, and other aspects of the therapeutic experience. Fixsen et al. (2005) call for additional experimental studies of relationships between fidelity to prescribed core components of EBPs and programs outcomes. Studies included in the review by Fixsen et al., (2005) used various types of treatment adherence measures, including interviews of a parent involved in multisystemic therapy to assess their perspectives of aspects of treatment received (Henngeler et al., 1992), interviews of knowledgeable staff in evaluations of supported employment programs (Bond et al., 1997), and surveys of children, parents and stakeholders in a home-based treatment (Fixsen et al., 2005).

In addition to understanding the impact of how the intervention was delivered, there is an increased need for accountability in managed care treatment settings that require delivery of EBPs (Madson & Campbell, 2006). Various measures of service quality are lacking in this arena. Methods are needed for empirically evaluating practice, especially when using complex interventions that require detailed delivery specifications, or in interventions that may lack model specification.

When studying change processes, it is important to understand how interventions work and how to improve them (Madson & Campbell, 2006; Orwin, 2000). Because the main purpose of intervention research is to understand through theory and testing how change takes place through core intervention procedures, measures of fidelity become necessary to ensure consistent service delivery in the field. Recognizing that adaptation is a necessary part of EBP implementation (Fixsen et al., 2005), understanding the extent of necessary adherence in order to deliver the treatment model as designed, and ways in which adaptation of a model can occur in treatment delivery is needed. Fidelity measures can allow careful monitoring of modifications, thereby allowing flexibility without losing salient elements of intervention model (Biegel et al., 2003). Improved measures and increased use of measures related to treatment adherence can benefit not only the research that tests interventions, but also the implementation of these interventions in practice.

There is a clear need for several areas of research regarding the role of skill in EBPs implementation. Attention should be paid to specific skills and required level of competency for a given EBP when transported to a community setting. Further, the relationship between training, skill and use needs further elaboration.

To ensure effective practice, social workers must be able to accurately assess their own clinical skills, either subjectively or by using assessment tools. Despite laments that evidence-based practice may erroneously be reduced to a list of approved practices for various client problems (Thyer, 2007), practitioners are not interested or do not have time or resources to engage in the EBP process to independently identify an appropriate

practice in the research literature (Addis, 2002; Mullen, Shlonsky, Bledsoe, & Bellamy, 2005). This unavoidable reliance on lists of EBPs raises even more urgently the importance of emphasizing competency prior to practice, especially with pressure from managed care companies for practitioners to report using EBPs (Rubin, 2008). Depending on the quality of their education, training and experience, workers may not possess the breadth of expertise needed to implement a practice with fidelity. Instead, they may possess expertise in a specific therapeutic style, only, or prefer a particular technique based on their ideology or what was in vogue when they received their graduate degree, and may lack interest in broadening their use of other practices (Lambert, 2004).

2.5.c. Organizational Characteristics

Many aspects of the service delivery context, also known as the organizational context, affect the uptake of evidence-based practices. Researchers have found many factors that are related to service outcomes (Hemmelgarn et al., 2006, Hemmelgarn & Glisson, 2002; Yoo, 2002), to their skill acquisition in them (Baer et al., 2009; Gioia, 2007), their attitudes toward (Saldana, Chapman, Henggeler, & Rowland (2007), and use of them (Johnson & Austin, 2006; Nelson & Steele, 2007; Simpson & Flynn, 2007). They have also examined organizational-level interventions to promote implementation of new practices (Mullen et al., 2008; Squires, Gumbley, & Storti, 2008; Amodeo, Ellis, & Samet, 2006; Simpson & Flynn, 2007). These findings support the inclusion of *organizational climate* (a subscale of the Survey of Organizational Functioning) (Lehman, Simpson & Greener, 2008) administered to counselors in the larger PPI study,

to better understand how it may influence use of MI.

After receiving training in evidence-based practices, many practitioners likely return to clinical practice with the intention to learn more about a practice and implement the skills they have acquired. But, as has been documented (Addis, Wade, & Hatgis, 1999; Addis, 2002; Mullen, 2004), they are faced with numerous obstacles to changing their practice, including challenges in the practice environment. Steib (2004) stresses that, "no one evidence-based program leads to faster reunification, more stable placements, or higher rates of recovery from addiction" than another one, but that many practices and programs can potentially affect these outcomes depending on a myriad of organizational and staffing issues (p. 611). Speaking from her knowledge of child welfare she notes that changes in practice may also necessitate changes in workload, staff qualifications, policies and procedures. Staff asked to use an EBP need additional knowledge and skills before they can begin to practice differently. Further, large caseloads may circumvent attempts to use more time intensive evidence-based practices. She notes that the child welfare field is not unaware of "what works," but that "what works" requires organizational assessment and change, systemic commitment, and continuous monitoring and evaluation.

Several implementation models discussed above indicate the importance of the organizational context (Glisson, 2007; Regehr et al., 2007; Simpson et al., 2007). If practitioners pursue training without organizational support for using practice skills acquired during training, their attempts to implement new practices may not succeed. Current research findings offer insight into how organizational variables may influence

both practitioners' service outcomes (Hemmelgarn & Glisson, 2002; Hemmelgarn et al., 2006; Yoo, 2002), as well as their motivation to learn about, and use evidence-based practices (Fixsen et al., 2005; Gioia, 2007; Johnson & Austin, 2006; Lehman, Simpson & Greener, 2002; Simpson & Flynn, 2007).

Recent research in child welfare has begun to document the importance of organizational characteristics in the treatment environment on service efficacy, either by affecting workers' satisfaction, retention and motivation to change practice, or by influencing client outcomes (Hemmelgarn et al., 2006; Yoo, 2002). Hemmelgarn and Glisson (2002) were the first to provide evidence that organizational climate is a predictor of service quality and outcomes (psychosocial functioning) in child welfare services. Organizational climate, defined as the, "attitudes shared by employees about their work environment" (Hemmelgarn & Glisson, 2002, p. 404), is the concept used in the current study. They found that the effectiveness of services depends heavily on the quality of relationships formed between workers and clients, and that the potential for building such relationships is influenced by organizational climate. Characteristics that comprise organizational climate include levels of conflict, role clarity, job satisfaction, cooperation, and personalization.

Beyond service outcomes, there is also recognition of the importance of organizational factors in the implementation of EBPs, and potentially yield better service outcomes. Influences within the agency environment (Fixsen et al. 2005), including organizational culture and climate (Johnson & Austin, 2006) have been found to affect the use of EBPs. Nelson and Steele (2007) found that perceived openness of the clinical

setting towards EBPs were predictors of self-reported EBP use. Organizational change has also been recognized as pivotal during efforts to increase use of evidence-based practices. Organizational change becomes a prerequisite for evidence-based practice because of the necessary shift away from authority-based practice and epistemological changes among staff regarding their understanding of how knowledge is derived from science (Chaffin, 2006).

Simpson and Flynn (2007) have noted the importance of considering organizational readiness to change as a key component of evidence-based practice implementation. This research has led organizational features to be treated as independent (not dependent) variables in studies examining EBP implementation. More attention to organizational features that affect adoption and effectiveness of programs is needed to understand how these features influence outcomes, and to improve adaptation of programs to organizational settings and cultures (Hemmelgarn, et al., 2006).

In a study of the role of organizational culture, Johnson and Austin (2006) identified several factors that can further support use of EBPs. Organizational culture is defines as the "the shared norms, beliefs and behavioral expectations that drive behavior and communicate what is valued in organizations" (Hemmelgran et al. 2006, p. 75). They recommend the development of agency-university partnerships to identify the research that supports evidence-based practice as well as the provision of staff training in agencies and on campuses that teaches problem-based learning to support adoption of EBPs. They further suggest the need to address discrepancies between existing agency cultures and cultures that promote use of evidence-based practice.

Organizational characteristics have also been found to affect skill development, and attitudes toward practices. Baer et al. (2009) found that psychological climate (variation within agencies) and organizational climate (variation between agencies) affects participants' learning of motivational interviewing. In an organizational change intervention, Gioia (2007) qualitatively explored the implementation of 5 evidence-based practices by mental health practitioners to understand their emerging clinical competencies and personal and organizational change. Findings highlight the importance of paying attention to practitioner attitudes during training around implementation of evidence-based practices to promote their continued use. Saldana, Chapman, Henggeler, & Rowland (2007) report that organizational functioning, motivational readiness, and training exposure and adoption predict adolescence substance abuse counselors' attitudes toward evidence-based practices. Certain counselor characteristics (e.g., confidence in counseling skills, ability to adapt to changing environment) were positively associated with the appeal of EBPs and to counselors' openness to new interventions. But, organizational climate and staff perceptions of program resources were not related to attitudes toward EBPs.

Various organizational interventions have been developed to assist service organizations with implementation of EBPs (Amodeo, Ellis & Samet, 2006; Simpson, 2002). Many recognize that organizational change is a prerequisite to adoption of new practices (Gioia, 2007; Simpson & Flynn, 2007). Thus, most implementation strategies involve program-level interventions to assist staff in making changes that can support implementation of practices. New practices can require new types of policies and

procedures as well as changes in staff roles and responsibilities. They may also necessitate different forms of supervision than is typically provided in service settings (e.g., more clinical supervision than administrative supervision).

Preliminary research in this area has focused on developing and testing organizational strategies to use at the program level to evaluate their effectiveness in implementation of a new practice. Based on their discussions with service agencies, Mullen et al. (2008) devised a strategy combining staff training with organizational development, and incorporated evidence into the organizational culture by developing agency-university partnerships to support use of EBPs. Findings from the implementation study are pending. Other studies have identified the importance of organizational support (Amodeo et al., 2006), and the detrimental impact of turnover (Squires, Gumbley, & Storti, 2008) for use of evidence-based practices.

Amodeo et al. (2006) tested two variations of Organizational Development (OD) with two substance abuse agencies to encourage use of evidence-based practices. OD involves development of organization-specific plans with work teams to identify needed changes in policies and procedures and improvement of clinical skill. Although they effectively used OD, the clinics required more foundational changes in their approach to clinical practice and agency treatment philosophy. The authors found that agency staff needed further skill development in basic clinical interactions before they could begin to introduce new practices. Further, they report that although training seems essential in skill development, without organizational support, change in behavior resulting from training is temporary.

Squires, Gumbley, and Storti (2008) evaluated the Science to Service Laboratory, an organizational change strategy developed by the Addiction Technology Transfer Center of New England. Ninety-six percent of 28 agencies successfully adopted and implemented the EBP (contingency management). The only difference reported between completer and dropout agencies' was that dropout agencies were more likely to report turnover in staff positions that may have affected training.

2.5.d. Practitioner Attitudes Associated with Use of EBPs

Attitudes of practitioners are one of the most commonly cited barriers to EBP implementation (Addis, Wade & Hatgis, 1999), and there is a considerable amount of survey research that has taken place around the role of practitioner attitudes in EBP implementation. The research has documented the various types of attitudes that affect use of practices: attitudes about the evidence-based practice process (Parrish, 2008), about treatment research, attitudes toward specific practices (Aarons, 2006; Mullen & Bacon, 2000), and attitudes toward their *use* of specific practices (Aarons & Palinkas, 2007; Nelson & Steele, 2007; Addis et al., 1999). Nelson and Steele (2007) document the role of attitudes as a mediator between receipt of training in a practice and use of practice.

Surveys have been conducted as a diagnostic measure prior to training and implementation to assess readiness to adopt new practices, and during training and implementation. Results of these studies have shown that practitioners' attitudes vary toward different evidence-based practices (Aarons, 2006) and that they influence the extent of reported use of a practice (Aarons & Sawitzky, 2006; Nelson & Steele, 2007).

Gioia (2007) cites the importance of practitioner attitudes, "when employers make an investment in workplace training, there is hope that practitioners will endorse the skills as a direct relationship to this investment. However, practitioners hold the power to eliminate or facilitate critical EBPs change, which is why one needs to pay attention to their attitudes" (p. 10).

Various facets of service provider attitudes regarding implementation of EBPs have received attention. For example, Aarons and Palinkas (2007) identified six primary factors affecting implementation after interviewing case managers in a state youth services system. These six factors include: "(1) acceptability of the EBP to the caseworker and to the family, (2) suitability of the EBP to the needs of the family, (3) caseworker motivations for using the EBP, (4) experiences with being trained in the EBP, (5) extent of organizational support for EBP implementation, and (6) impact of EBP on process and outcome of services" (p. 411). They report that implementation of an EBP is a consequence of perseverance, experience and flexibility. Others have proposed the importance of education and experience on implementation of EBPs.

Addis et al. (1999) cite clinical psychologists' most common concerns regarding use of manualized (evidence-based) therapies: effects on the therapeutic relationship, unmet client needs, competence and job satisfaction, treatment credibility, restriction of clinical innovation, feasibility of manual-based treatments. They suggest, "practitioners' concerns about, experiences with, and reactions to manualized treatments must be explored and understood if evidence-based practice is to become a reality" (p. 431). In particular they report that some clinicians are "concerned about their ability to learn and

successfully implement manual-based treatments" and that, "data on skill level with regard to manualized treatments are extremely limited" (p. 431). They call for implementation research to understand how best the benefits of evidence-based treatments can be maximized; doing so requires consideration of the psychological and economic realities of practitioners, administrators and third-party payers.

Within social work, Mullen and Bacon (2000) report on the attitudes toward use of practice guidelines and evidence-based treatments. In a survey of 124 practitioners in a large urban mental health/social service agency, they found that social workers, compared to psychiatrists and psychologists, had less understanding of the meaning of practice guidelines, and rarely read the research literature, but were open to the use of practice guidelines. They report that social workers are more frequent users of consultation with peers and supervisors as a means to obtain practice guidance. The authors conclude that influencing social workers to rely more on evidence for practice decisions may best be served through these social conduits.

Efforts to change attitudes about use of evidence-based practices may prove to be a preliminary step to support implementation. Aarons (2004) found that mental health providers' attitudes toward a new practice predict their adoption of it. Nelson and Steele (2007) found perceived openness of the clinical setting towards EBPs and practitioner's attitudes toward treatment research were predictors of self-reported EBP use. Aarons (2004) found that practitioner education and clinical experience were related to their attitudes about use of EBPs. Based on a survey of 21 directors and 89 clinicians in 24 public addiction treatment programs, McGovern, Thomas, and Drake (2004) report that

clinicians are motivated to adopt some EBPs (12 step, CBT, MI, relapse prevention therapy) more than others (contingency management, behavioral couples therapy, pharmacotherapies). The authors compared differences in clinicians' and directors reported practice, but did not explore other predictors of use. In a study evaluating training in the evidence-based practice process, Parrish (2008) showed post-training increases (at three months) in attitudes towards EBP, perceived feasibility of EBP, self-efficacy with regard to EBP, knowledge of EBP, and intentions to engage in EBP.

Research on practitioners' attitudes toward use of evidence-based practices is one of the more studied practitioner characteristics affecting implementation of EBPs. The majority of the research on attitudes is through survey designs producing descriptive findings, and a few studies have examined attitudes as part of training in EBPs or EBP. Still, though, few studies have looked at how attitudes' may affect EBP use, or how attitudes can affect other implementation processes, through receipt of training and subsequent skill development. This study will address the need for more research regarding the role of attitudes in promoting the use of EBPs.

2.5.e. Motivation to Use MI

There is little research regarding how counselor motivation to use an EBP may relate to use of the EBP. Saldana, Chapman, Henggeler, & Rowland (2007) report that among other counselor factors, motivational readiness predicts adolescence substance abuse counselors' attitudes toward evidence-based practices. Motivation to use a practice may be an important factor in EBP implementation because it reflects workers' motivation to change their practice. In the same way that the transtheoretical model is

applied to understand client change, including gauging their readiness to change, it can help understand workers' and programs' motivation to change their practice. Counselor motivation is considered in the current study to better understand how it relates to MI skill level and use of MI, and how it may affect other key relationships between training, skill and use of MI. Further, this study controls for education when exploring the role of motivation to use MI.

2.5.f. Summary of Research

There is significantly more research in the area of training compared to other practitioner characteristics that could affect adoption of EBPs, but more research is needed regarding the exact types and amounts of training needed to promote use of various EBPs by various types of practitioners. There is very little research on the influence of skill level on practitioners' effective use of evidence-based practices, including attention to the exact skills that an EBP requires to attain positive outcomes, the level of proficiency required to deliver an EBP with fidelity, and, in concert with research on the efficacy of EBPs training, how best to develop and maintain new skills.

The influence of organizational contextual influences on implementation of EBPs has received significant attention, through research examining how the work environment affects client outcomes, and how it influences workers' attempt to learn and apply new treatment practices. This research focuses on the role of organizational-level interventions to prepare for and assist service delivery settings with changes in practice. Additional research testing current models is needed with various types of EBPs in different service settings with different types of practitioners.

Attitudes of practitioners have been identified as important to consider in implementation of EBPs, both toward a new practice and toward changes in practice. Attitudes vary across types of practitioners, and toward different practices. Training may provide an avenue for influencing attitudes, which in turn can affect use of new practices. There is a small amount of research regarding the role of practitioner behaviors that can influence adoption of EBPs, including staying abreast of research in their field, and evaluating practice outcomes. The extent that these behaviors are related to use of EBPs should be further explored, including additional research on effective ways to train practitioners to engage in these practices.

2.6. Motivational Interviewing—an Evidence-based Practice

This study explores how various counselor characteristics may relate to use of Motivational interviewing (MI), an evidence-based practice. Motivational interviewing is a practice that has been defined as evidence-based on the basis of research indicating its effectiveness in promoting client behavioral change, primarily in the addictions field. It is also a practice with substantial research evaluating its trainings, and several measures of MI skill exist. This research basis makes MI a well-defined and measurable practice— useful traits for studying its implementation. This section will define therapeutic aspects of MI, briefly review research indicating its effectiveness, and finally discuss research related to this study's aims.

Miller and Rollnick (2002) define MI as a "client-centered, directive method for enhancing intrinsic, motivation to change by exploring and resolving ambivalence" (p. 25). The approach motivates clients to change starting from their current stage of

readiness rather than attempting to force them to change through persuasion or confrontation. Individuals for whom MI has been successful include clients who are reluctant to, or ambivalent about, changing their behavior. These include substance abuse populations as well as other populations treated in medical settings, especially those with difficulties in adhering to medical protocols or those trying to make lifestyle changes (e.g., weight loss, smoking cessation) (Rubak, Sandbæk, Lauritzen, & Christensen, 2005).

The technique is based on the stages-of-change construct of the transtheoretical model of change (Prochaska & DiClemente, 1984). The theory states that change occurs through progression through five stages of change, including pre-contemplation, contemplation, preparation for change, action, and maintenance. *Precontemplation*, the first stage, is a time when the individual has not considered changing, *contemplation* is a stage when the individual considers current behavior and considers change, *preparation* involves making a commitment and developing a plan for change, *action* involves taking steps to change and behaving differently, and *maintenance* occurs when new behavior continues and becomes a part of typical behavior.

Velasquez, Maurer, Crouch and Diclemente (2001) developed the first comprehensive substance abuse treatment program based on the TTM that promotes movement through the stages in each session by focusing on processes of change. Velasquez, von Sternberg, Dodrill, Kan & Parsons (2005) have evaluated use of motivational enhancement interventions based in the TTM with alcohol and/or drug users.

The spirit of MI entails collaboration, evocation, and autonomy (Miller and Rollnick, 2002). Some of the following principles help define this "spirit." (1) Motivation to change is elicited from the client, and not coerced or brought about through confrontation. (2) The client, not the therapist, should articulate and resolve his or her ambivalence toward change. The therapist can help facilitate this ambivalence by offering reflective statements. (3) The therapist does not engage in direct persuasion, and avoids engendering client resistance to change. (4) The style of counseling is not aggressive or argumentative; rather, it involves listening and eliciting. (5) The style is directive in that it attempts to help clients examine and resolve ambivalence. Ambivalence or lack of resolve is seen as the main obstacle to be overcome so that clients can begin change. (6) Readiness to change is a product of interpersonal interaction (7). The therapeutic relationship is more of a partnership than expert/recipient roles. The therapist respects the client's freedom of choice (and consequences) regarding his or her own behavior (Rollnick & Miller, 1995).

Several systematic reviews and meta-analyses of MI have been conducted, providing significant evidence for the efficacy of MI with a range of client populations and problems. Rubak et al. (2005) conducted a meta-analysis of research on motivational interviewing that included 47 of 72 randomized clinical trials pertaining to alcohol abuse and different forms of addiction. They found that 74 percent of studies showed that MI produced a positive treatment effect. In 75 percent of these studies, MI outperformed traditional advice giving. In other meta-analytic reviews, differences in intervention duration, types of problem behaviors targeted, therapists' backgrounds, skill levels,

treatment settings, (Dunn, Deroo & Rivara, 2001), and dosage concerns (Madson & Campbell, 2006) have made drawing conclusions about MI efficacy more difficult.

Counselor characteristics have been examined in some research looking at MI efficacy. Rubak et al. (2005) found that in the review of factors affecting outcomes, the therapist's educational background did not make a difference compared to the influence of the number of sessions.

In their review of motivational interviewing research, Madson and Campbell (2006) found that dosage issues were a common study focus. Specifically, Polcin, Galloway, Palmer & Mains (2004) called for higher doses of motivational enhancement (a form of MI that relies on 4 sessions or fewer), and Project MATCH showed that higher numbers of sessions related to better outcomes. In the Rubak et al. (2005) review, MI was found to be effective in brief encounters of 15 minutes, with more than one encounter increasing the likelihood of effect.

Dunn, Deroo and Rivara (2001) reviewed the effectiveness of brief behavioral interventions adapted from MI in four areas: substance abuse, smoking, HIV risk and diet/exercise. The review included 29 randomized trials, attempting to calculate effect sizes for each. Due to differences in intervention duration, types of problem behaviors targeted and therapists' backgrounds and skill levels, and settings, they could not combine findings in meta-analytic form. Sixty percent of the studies reported at least one significant behavior change. Study data were only able to indicate that the approach was effective in substance abuse treatment settings.

2.6.a. Research Associating MI Training with MI Skill and with Use of MI

Research has documented increases in motivational skill level, and use of MI after receipt of training in motivational interviewing. Within the motivational interviewing literature, attention has been given to the types of training supports that promote sustained skill levels; receipt of feedback and coaching improve the maintenance of skill gains at four-month follow-ups (Miller, Yahne, & Moyers et al., 2004; Schoener et al., 2006). Several studies described below evaluate various types of supervision, coaching and feedback mechanisms on practitioner skill maintenance (up to four months) after receiving 2-day workshops in MI. Other counselor characteristics have been examined alongside skill gains; higher levels of education and lower endorsement of disease models (Baer et al., 2004) and length of employment at an agency (Schoener et al., 2006) have been associated with higher MI skill level.

Miller, Yahne, & Moyers et al. (2004) conducted a randomized trial that compared a 2-day workshop alone, a 2-day workshop with feedback, a 2-day workshop with coaching (supervision) to develop practitioners' MI skill. Only those that received feedback and/or coaching exhibited a greater than 95 percent proficiency level for MI-consistent behavior at the four month follow-up. The authors also examined the role of five personality variables in predicting MI proficiency. Self-esteem, feeling, aggression, achievement, and nurturance were hypothesized to affect a MI global spirit score and a MI-consistent response ratio. None of the characteristics predicted these MI proficiency measures at baseline or at the 4-month follow up.

Hartzler, Baer & Dunn et al. (2007) evaluated how well 23 practitioners involved in a MI training could accurately evaluate their own clinical skills. Assessment was conducted by completing standardized patient interviews before and after training, by providing self-ratings of MI elements after each interview, and by coding session audio-tapes. Findings suggest that training contributed to reasonable agreement between practitioner and standardized ratings. Practitioners were found to underestimate training gains, but they did show increases in MI skill. The authors conclude that practitioner self-ratings and skill assessments can be used together to more fully describe and understand practitioner learning.

Baer et al. (2004) also evaluated a 2-day MI training workshop with 22 addiction and mental health clinicians by assessing skill level through the use of standardized patients. Two months after training less than half achieved proficiency standards. There was no supervision offered after training. MI proficiency declined from post-workshop assessment to follow up. More recently, Baer et al. (2009) studied the use of context tailored training model (CTT) and a standard 2-day MI workshop but found no difference in skill gains based on the training model used. But, they did find that two counselor characteristics related to MI skillfulness. Trainees with higher levels of education and lower endorsement of disease models had higher levels of MI skills at baseline. These baseline differences remained at post-training and follow-up assessments.

Schoener et al. (2006) evaluated a 2-day workshop that included regular supervision/coaching every other week for 16 weeks after the training. During supervision therapists evaluated their own audiotapes of clinical sessions. Therapists

made statistically significant gains on six of seven elements of the Motivational

Interviewing Skill Code (MISC) at the post training assessment 4 months after training.

An interesting finding was that the longer a therapist had been employed by an agency,

the smaller increase they showed in their use of open-ended questions—a motivational

interviewing technique. The authors suggest that this finding may point to the difficulty

these therapists have in learning MI, or that they may require additional training to

achieve proficiency. The study mentions motivation for training as a therapist issue that

can affect skill development, but did not measure it.

Rubak et al. (2006) conducted a randomized controlled trial to study the impact of

an education and training course in motivational interviewing on general practitioners'

self-reported use of MI. The training was offered for one and half days with half-day

follow-ups twice during the first year. Results showed that GPs who had received the

training indicated through self-report that they used MI techniques significantly more

than those who did not receive training.

2.6.b. Research Associating MI Skill and Use of MI

As described in the last section regarding research on motivational interviewing

training, some training models have been effective in increasing skill levels. Research

and training related to motivational interviewing have made significant inroads into

developing fidelity and competency assessment instruments. Motivational interviewing

has been widely recognized as a complex therapeutic technique and therefore requires

training and assessment for skill development.

The motivational interviewing field has a strong body of skill assessment techniques. Skill in MI has been assessed with a variety of assessment instruments, developed in order to assess training outcomes and to assess fidelity in practice. MI fidelity during treatment has been assessed with the Motivational Interviewing Treatment Integrity Scale, the Motivational Interviewing Skill Code, and the Motivational Interviewing Process Code (Madson & Campbell, 2006).

Madson and Campbell (2006) reviewed five major MI adherence and competence measurement instruments. They note the importance of rigorous evaluations of clinician adherence and competence to practices during implementation. Methods for measuring skill in MI usually include assessment of therapist behaviors during actual therapy sessions that are video or audio taped to assess the presence of specific therapeutic techniques. Client speech and behavior is also sometimes used to assess therapists' skill in MI. The ratings included global ratings, behavioral counts, and the use of clinician attributes such as use of open-ended questioning and refraining from advising clients. Some instruments attempt to assess "spirit of MI" by noting the presence of an overall tone and flow of the therapeutic interaction. Some of the measures are difficult to implement in practice or training because of their length and complexity. The authors suggest that developers need to address item reliability to strengthen measures.

There is a lack of research examining the extent to which counselors' skill level in MI (as assessed by various measures described above) may moderate the extent of their use of MI after receiving training. Miller et al. (2004) believe that coaching and feedback are essential for solidifying skill in practice settings. But, they warn that receipt of

training may lead some practitioners to assume they are sufficiently skilled to practice MI with their clients. As Miller et al. (2004) report, counselors' self-perceived competence in delivering a behavioral treatment may have little or no relationship to their actual practice proficiency.

As described in the introduction to this section, while there is some research on the influence of practitioner characteristics on the implementation of MI, additional research is needed. More efficacy research is needed for trainings commonly used to train practitioners from community-based service settings in MI, including understanding of the most effective formats and length of facilitation and coaching needed to maintain skill level. Finally, more research is needed to better understand how practitioner attitudes and organizational factors affect the extent and success of implementation efforts with MI.

2.7. Summary of Literature Review

This chapter began by reviewing existing models of evidence-based practice and models of implementation of EBPs. Common factors across models were identified. Most models and conceptual discussions of the EBP process indicated the need for training and the essential role of the organizational context for implementation of practices; few explicitly focus on practitioner skill and attitudes as drivers of implementation. Empirical findings supporting current models of evidence-based practices implementation are only beginning to emerge with the review by Fixsen et al. (2005) and research in substance abuse program-level change efforts by Simpson and colleagues (2002). Nelson & Steele (2007) have offered findings indicating practitioner perceptions are predictors of reported EBP use.

Research regarding how specific practitioner characteristics influence use of evidence-based practices was reviewed. There is a lack of research on the efficacy of trainings used to increase the effective use of EBPs by practitioners; trainings often document changes in skill, but follow-up beyond four months is lacking. Research on skill development in EBPs (either through training or through other methods), is clearly needed. An emerging research agenda has begun to study the role that organizational features and organizational context play in the transfer of knowledge from research to practice. This area of research has identified training and supervision, and assessment of practice as important to understanding EBPs implementation within the service organization. Additional research in each of these characteristics is needed.

Research related to motivational interviewing has begun to address some of the questions regarding effective training and skill development, but has not addressed the influence of practitioner attitudes on adoption of the practice, nor the importance of organizational factors. In general, more research on implementation of evidence-based practices is needed that focuses specifically on practitioner factors. Research is especially needed regarding the type and level of skill needed in specific EBPs to attain client outcomes commensurate to outcomes achieved during clinical trials, and the necessary supports to offer these practices in non-research settings. This body of research should produce more understanding of implementation processes and yield evidence for the use of evidence-based practices in real-world contexts.

In Chapter 3, variables used to operationalize each counselor characteristic are described. The study's research design, data collection procedures and study sample are also described.

Chapter 3

Methods

3.1 Overview

The data for this study comes from the Texas Process and Practice Improvement (PPI) Study, funded by the National Institute on Drug Abuse (NIDA). The study was conducted by the Gulf Coast Addiction Technology Transfer Center (GCATTC), a subcontractor to the Texas Department of State Health Services and a unit of the Addiction Research Institute in the Center for Social Work Research at The University of Texas at Austin School of Social Work. The study was designed to examine the impact of program-level interventions (organizational change training and quarterly outcome feedback reports) on public substance abuse outpatient treatment centers' implementation of motivational interviewing. A survey of counselors from the study clinics provides information regarding counselors' education, training, perception of organizational climate, motivation to use motivational interviewing and reported use of MI with their clients, among other topics. The survey also includes a subscale that measures counselors' attitudes related to MI. Counselors' skill in motivational interviewing is assessed using the Video Assessment of Simulated Encounters-Revised (VASE-R) (Rosengren et al., 2005).

The first section of this chapter describes the Texas Process and Practice Improvement (PPI) study. The chapter begins by describing the PPI study's design,

sampling procedures, data collection procedures, and study variables. The second section of this chapter describes variables used in the current study. The third section describes data collection and data analysis procedures for the 17 study hypotheses, corresponding with the study's six aims.

3.2 PPI Study Research Design

The research design used in the PPI study was a randomized control group design. Thirty-two outpatient clinics were randomly selected from a list of all state-funded outpatient programs and assigned to four study groups, each comprised of eight clinics. Two study groups (Groups 1 and 2) received program-level interventions-- quarterly graphic feedback reports on "during treatment" client outcomes (such as attendance at 12-step programs), and optional motivational interviewing training. One of these groups (Group 2) also received organizational change training and facilitation with their clinical director and outpatient counseling staff. Two control groups (Groups 3 and 4) received no interventions. Clinics in Group 3 were asked to collect client survey data on a quarterly basis, and Group 4 completed client surveys at the beginning and end of the study only. Surveys of directors and counselors were administered to all clinics annually. Table 3.1 reports the intervention components and frequency of data collection for each of the four study groups.

The specific aims of the PPI study were to measure the impact of quarterly graphic feedback reports and organizational change training on "during treatment" client outcomes. During treatment client outcomes included treatment engagement, 90 days in treatment, description of aligned services (needed and received), AA/NA participation

during treatment, therapeutic alliance with the program's counselors and treatment

completion. The organizational change training focused on ways the programs could

improve organizational functioning to support further implementation of motivational

interviewing by counseling staff.

Table 3.1

PPI Program-level Interventions and Data collection by Study Group

PPI Study Group	Intervention(s) offered to/received by clinics	Data Collection
Study Group 1 (N=8 clinics)	Optional MI training	Quarterly client survey (N=8)
	Quarterly graphic client outcome feedback reports	PPI Counselor and Director survey (N=8)
		VASE-R (N=5)
Study Group 2 (N =8 clinics)	Optional MI training	Quarterly client survey (N=8)
	Quarterly graphic client outcome feedback reports	PPI Counselor and Director survey (N=8)
		VASE-R (N=3)
	Mandatory organizational change training	
Study Group 3 (N=8 clinics)	None	Quarterly client survey (N=8)
		PPI Counselor and Director survey (N=8)
		VASE-R (N=3)
Study Group 4 (N=8 clinics)	None	PPI Counselor and Director survey (without MI questions) (N=8)
		VASE-R (N=3)

3.2.a. PPI Study Program Eligibility, Recruitment and Sampling

Inclusion criteria for substance abuse treatment programs to participate in the PPI study included provision of outpatient services to at least fifty clients per year, and state-level certification as an outpatient substance abuse treatment program. Programs were excluded if they offered therapeutic communities, detoxification-only programs, or methadone-only programs. Programs were also excluded that were participating in other Gulf Coast Addiction Technology Transfer Center research studies because of prior exposure to organizational change strategies. Recruitment letters were sent to all state-funded substance abuse treatment programs with outpatient programs seeking their participation and explaining the random assignment to be used in the study. If they expressed interest in the study, programs were informed regarding their required level of involvement, including time for conference calls, trainings, and quarterly and/or annual data collection from staff and clients. Programs were also informed of one incentive for their participation in the study. If a program participated in the study, it would have tuition waived for two staff members' attendance at the state-sponsored annual Behavioral Health Institute.

Once the sampling pool of programs was identified based on eligibility criteria, executive directors were contacted to identify which of their clinics would participate in the study. (Programs were allowed to have any number of their clinics to participate.) Random assignment without replacement was conducted to assign each clinic to one of the four study groups. A table of random numbers (Babbie, 2002) was used to randomize clinic sites to four study groups. Each study group comprised eight clinics, for a total of

32 clinics. Programs that indicated interest in participation were listed in a spreadsheet and numbered from 2 to 42. In the random numbers table, the first two digits on the far left side of numbers were used and numbers were viewed by column, top to bottom, moving to the top of the next column to continue selection when the end of the column was reached. When the random number corresponded to the clinic number, the clinic was placed in a study group. The first eight clinics selected were assigned to Study Group 1, the next eight clinics selected were assigned to Study Group 2, and so on. If a number on the random table corresponded to a clinic that had already been selected, the number was skipped.

A total of 32 individual clinics, from 19 programs, were included in the PPI study sample. Nine programs had at least two clinics in the study, one program had three clinics in the study and one program had four clinics in the study. In one case, a program's two clinics were in the same study group. The remaining programs' clinics were assigned to different study groups.

During sample selection, three programs declined to participate due to lack of interest or due to the required time commitment. Later, during the study, three clinics discontinued participating in the study due to reorganization at the program level. In one program, two clinics merged with two other clinics, and in another program, one clinic merged with one other existing clinic as a result of reorganization, resulting in twenty-nine clinics at the second PPI survey administration.

Additional attrition occurred among the original program staff after the study began in December 2006. During the initial counselor survey 81 counselors participated;

by the end of the study, 70 counselors completed the second counselor survey. Throughout the year, there was turnover among staff, and program directors reported their inability to hire new staff. During the second counselor survey administration (described below) the study obtained new participants hired by clinics since the first survey administration. A third administration was conducted to increase sample size for this study.

3.2.b Current Study Sample

The sample for the current study is comprised of 89 respondents, but due to missing data, analyses have different numbers of cases, depending on the dependent variable. Analyses in which use of MI is the dependent variable have 76-77 cases, and analyses in which MI skill level is the dependent variable have 45-47 cases.

The sample is made up of counselors who have relatively low training in MI. Sixty percent of the sample reported receiving eight or fewer hours of MI training, and thirty-one percent reported receiving no training. The sample is also on average relatively low-skilled in MI (based on measurement by the VASE-R). Only ten (20%) counselors achieved a score indicating proficiency in MI. The mean score of 18.3 is quite low given that the instrument has a range of 0-36. Despite the sample's low receipt of training and low skill levels, it reports high use of MI. Forty-six (59%) respondents report using MI with either about 75% of their clients or with all of their clients. (Descriptive statistics for each study variable are presented in Chapter 4.) Demographic and professional characteristics are reported in Table 3.2, below. Program characteristics are included to offer a contextual account of the programs in which the counselors are working.

Table 3.2

Clinic Characteristics of Study Sample

	N	Percent
Number of years of program operation		
1 year	1	3.8
2 years	1	3.8
3 years	2	7.7
More than 8 years	22	84.6
Program ownership		
Private for profit	8	30.8
Private not for profit	12	46.2
Public not for profit	3	11.5
Other	3	11.5
Accreditation/licensing		
JCAHO	1	3.7
CARF	1	3.7
State alcohol and drug abuse department/agency	13	48.1
State department of health	10	37.0
State mental health department/agency	2	7.4
Problems treated		
Alcohol problems only	2	7.4
Drug problems only	2	7.4
Both alcohol and drug problems	22	81.5
Co-occurring psychiatric and substance use disorders	23	85.2
Staff changes in the last year		
Agency Director/CEO	2	8.3
Program/Clinical Director	9	36.0
Chief Financial Officer	1	4.2
Other management positions	8	32.0
Services provided		
Medical	4	14.8
Psychiatric	6	22.2
Psychological	6	22.2
Employment counseling or job training	12	44.4
Education classes	2	7.4
Family counseling/therapy	19	70.3
Parenting	10	37.0
Prenatal care or services	3	11.1
Child care	5	18.5
HIV/AIDS education/counseling	17	63.0
Smoking cessation	11	40.7
Social Services	4	14.8
12-step or support groups	8	29.6
Transportation to program	9	33.3
Preparation for aftercare	20	74.1

Table 3.2 (continued)

Clinic Characteristics of Study Sample

	N	Percent
Counselor characteristics		
Number who work for program		
2 -4 counselors	9	34.5
5 -6	6	23.1
7 or more	11	42.3
Hired in last 6 months		
0-2 counselors	22	81.5
4-6	5	18.5
Left program in last 12 months		
0-2 counselors	16	64.0
3-4	8	32.0
6	1	4.0
Have less than 2 years with the program		
1-3 counselors	19	76.0
4-7	6	24.0
Have 2-9 years with the program		
0-2 counselors	8	33.3
3-5	11	45.8
6 or more	5	20.8
Have more than 10 years with the program		
0-2 counselors	19	76
3-5	5	20
7 or more	1	4
Are in recovery		
0 – 2 counselors	11	44
3-5	9	36
6 or more	5	20
Counselor caseload sizes		
0 clients	4	5.0
1-10	12	15.0
11-20	27	33.8
21-30	13	16.3
31-40	10	12.5
More than 40	14	17.5

3.2.c. Informed Consent and Human Subjects Protection

Upon agreement by the program director for a clinic to participate in the study, clinic counselors interested in participating were asked to read, sign and return by mail or fax an informed consent form. Counselors who were not employed by the clinics at the beginning of the study were able to give informed consent to participate in data collection activities online as part of the counselor survey. The consent form is included in Appendix A.

The PPI study design, procedures, data collection instruments, and informed consent forms were approved by the University of Texas at Austin Institutional Review Board (IRB Protocol #2005-05-0018).

3.2.d. Data Collection

During the PPI study, annual data collection was conducted with program directors and counselors. Quarterly client survey data were collected from clients seen by clinics assigned to Study Groups 1, 2 and 3. Additional aggregate client outcome data were accessed from the state behavioral health database for evaluation and quarterly reporting to Study Groups 1 and 2 (as part of the graphic feedback intervention). In addition, during 14 focus groups at the end of the study, the author administered the VASE-R to a convenience sample of 50 counselors. The VASE-R assesses one study variable: skill in motivational interviewing. Each of the data collection instruments is described in detail below.

3.3. Measurement of Variables

3.3.a. Independent and Dependent Variables in Study Aims

This study treats counselor characteristics as independent variables in each study aim. One independent variable, *MI Skill Level*, is also treated as a dependent variable in Aim 1. *Use of MI* is the dependent variable in the other five study aims. Several variables are tested as mediators and moderators of bivariate relationships. Counselor perceptions of organizational climate, counselors' *Supportive Attitudes related to MI*, *Motivation to Use MI*, and *MI Skill Level* are tested as mediators or moderators of relationships between *Amount of MI Training* and *MI Skill Level*, *Amount of MI Training* and *Use of MI*, and *MI Skill Level* and *Use of MI*. Table 3.3 lists study aims that test direct, bivariate relationships, and Table 3.4 lists study aims that test mediating relationships.

Table 3.3

Study Aims Exploring Bivariate Relationships

	Aim 1	Aim 2	Aim 3	Aim 4	Aim 5	Aim 6
Independent variable	Amount of MI Training	MI Skill Level	Amount of MI Training	Motivation to Use MI	Organizational Climate	Supportive Attitudes related to MI
Dependent variable(s)	MI Skill Level	Use of MI	Use of MI	(a) MI Skill Level	(a) MI Skill Level	(a) MI Skill Level
				(b) Use of MI	(b) Use of MI	(b) Use of MI

Table 3.4

Study Aims Exploring Mediating Relationships

	Aim 1	Aim 2	Aim 3
Independent variable	Amount of MI Training	MI Skill Level	Amount of MI Training
Dependent variable	MI Skill Level	Use of MI	Use of MI
Mediators	• Motivation to Use MI • Organizational Climate • Supportive Attitudes related to MI	• Motivation to Use MI • Organizational Climate • Supportive Attitudes related to MI	• Motivation to Use MI • Organizational Climate • Supportive Attitudes related to MI • MI Skill Level

3.3.b. PPI Counselor Survey

The Counselor Survey was administered online annually to counselors in all study groups. (A copy of the Counselor Survey is in Appendix B.) The Counselor Survey is the primary data source for counselor characteristics variables. The survey is comprised of the following instruments: Survey of Organizational Functioning (SOF) (TCU Institute of Behavioral Research, 2008), Working Alliance Inventory-Therapist Short Form-Revised (WAIS-R) (Horvath & Greenberg, 1986), the Attitudes toward Motivational Interviewing and Supportive Behaviors Assessment and the Employee Voice Scale (EVS). Data from the WAIS-R and the EVS are not used in the current study. In addition, a question item asked the amount of training received in MI. Respondents were given the following choices: (1) Never received MI training; (2) 4-8 hours of MI training; (3) 2 days of MI

training; (4) 3 days of MI training; (5) 4 days of MI training; (6) 5 days of MI training; and (7) More than 5 days of MI training. They were also asked about their motivation to use MI with one question item ("At the present time, how ready do you feel to use Motivational Interviewing techniques with your clients?"). The item was developed for the PPI Counselor Survey from a question item originally developed by Roman (1988).

Program directors were emailed a link to the online survey site and asked to forward it to their outpatient counselors. To increase survey responses, study staff emailed and phoned program directors, with status reports regarding the survey completion rates. Directors were asked to encourage their staff to complete the survey to obtain as complete a picture as possible regarding staff perceptions of organizational functioning.

During baseline data collection, counselors in Study Group 4 were not asked questions about motivational interviewing or about evidence-based practice usage in order to test the effects of the organizational change facilitation on adoption of motivational interviewing. During the second survey administration, MI questions were included in the Study Group 4 counselor survey.

3.3.c. Organizational Climate

Organizational Climate is a subscale of the Survey of Organizational Functioning (SOF) (TCU Institute of Behavioral Research, 2008), included as part of the PPI Counselor Survey. The survey assesses staff perceptions in the following areas: motivational factors, program resources, staff attributes, and organizational climate, job attitudes and workplace practices.

Each scale of the SOF contains an average of six items. Each item is answered with a five-point Likert scale that ranges from strongly disagree to strongly agree. "A scoring manual explains procedures for computing scale scores (some items require "reflected" scoring for items with reverse wording, and a limited number of missing responses is permissible). In essence, the set of item responses (i.e., values of 1 to 5) for each scale are averaged and multiplied by 10, yielding scores that range from 10 to 50 with a midpoint of 30. A score of 30 is 'neutral' because it reflects neither overall agreement nor disagreement with the set of items from any given scale. Scores closer to 50 reflect strong agreement with the named attribute, while those closer to 10 reflect strong disagreement" (Simpson, 2007, p. 9).

Reliability and validity of the SOF was studied with a national sample of over 500 staff members from more than 100 programs. Principal components analysis confirmed the scales' factor structure, and acceptable internal consistency for each sub-scale was indicated. Within the *Organizational Climate* subscale, the following coefficient alpha values were obtained: mission (.72); cohesion (.87); autonomy (.60); communication (.80); stress (.83); and change (.78). Further, relationships of scales with selected client and program functioning indicators indicate they have good predictive validities. The instrument requires about 35 minutes to complete. Joe et al. (2007) have used the organizational climate scale as a general climate measure and report reliability of .83.

3.3.d. Supportive Attitudes related to Motivational Interviewing

The Attitudes toward Motivational Interviewing and Supportive Behaviors Assessment was developed for the PPI study to assess counselors' attitudes toward

motivational interviewing and to assess whether they were engaged in behaviors

consistent with the evidence-based practice process. These behaviors were considered

possible factors that could explain documented increases in use of MI. The scale was

comprised of nineteen items. Examples of these items are: "*I was encouraged to learn*

about Motivational Interviewing by my agency," "*I sought information about*

Motivational Interviewing on my own initiative," "*I have read research findings related*

to Motivational Interviewing," and "*Our staff has discussions about interventions that are*

evidence-based." Results of principal components analysis of the assessment are reported

in Chapter 4.

3.3.e. Video Assessment of Simulated Encounters-Revised (VASE-R)

Skill in motivational interviewing was measured with the Video Assessment of

Simulated Encounters-Revised (VASE-R) (Rosengren et al., 2005). The VASE-R was

originally developed for motivational interviewing training, but is also suitable for

assessing counselors' skill in motivational interviewing. A copy of the VASE-R Answer

Booklet is provided in Appendix C. The strength of this instrument lies in its low cost

administration and ability to administer in group settings compared to more time

intensive tools that involve coding of individual taped clinical counseling sessions. The

tool assesses five micro-skills: reflective listening, responding to resistance,

summarizing, eliciting change talk, and developing discrepancy.

The VASE-R was found to have concurrent known-instruments validity with

other MI measures of skill—the Helpful Responses Questionnaire (.67) and two of four

Motivational Interviewing Skills Code (MISC) indices for standardized patients

interviews (.51 each for percentage of clinician reflections that were complex and MI consistency). Scores for the other remaining two indices (ratio of clinician reflections to questions and percentage of clinician questions that were open-ended) approached significance (Rosengren et al., 2005).

Counselors working in 14 clinics that were selected for focus groups (based on willingness to participate and convenience to research staff schedules) were invited to participate in a motivational interviewing skill assessment using the VASE-R.

Administration of the VASE-R takes approximately 45 minutes. During the assessment, counselors provide written clinical responses to three actors portraying clients seeking substance abuse treatment in video vignettes. Counselors respond to clients through writing on a provided answer booklet. Each of the responses is scored to produce a total score that assesses their proficiency. Each item response is scored as a 0, 1 or 2. The scores of each of the eighteen items are summed to produce a total score ranging from 0 - 36. Total scores at or above 27 suggest general MI proficiency.

Scoring of the VASE-R answer booklets for the PPI study was completed by the author and research associate of the Addiction Research Institute. The author received four hours of training in the use of the VASE-R scoring manual from an expert in motivational interviewing, Dr. Nanette Stokes Stevens. Dr. Stevens provided instruction in the use of the VASE-R scoring manual and conducted simultaneous scoring with the author. Where discrepancies occurred, Dr. Stevens explained the accurate score. The author then trained another clinician employed by the Gulf Coast Addiction Technology Transfer Center in VASE-R scoring procedures. The two scorers (the author and the

clinician) practiced scoring five answer booklets individually and then discussed each

discrepant score to improve scoring consistency. The two scorers then independently

scored all of the VASE-R answer booklets individually. After comparing each score for

each item, items that were not given the same score by each scorer (0, 1, or 2) were

flagged. The two scorers re-evaluated each discrepant item and came to consensus on a

score. The instrument's developers report that independent coders are usually able to

consistently rate responses and that inter-relater reliability near 100% is not difficult to

attain (Rosengren et al., 2005).

Table 3.5, below, lists each variable, data source, and example item response

choices.

Table 3.5

Description of Study Variables

Variable	Data Source	Question Item or Scale	Response categories
Amount of MI Training	Cover page adapted for VASE-R	Prior MI training (check one)	• Never received MI training • 4-8 hours of MI training • 2 days of MI training • 3 days of MI training • 4 days of MI training • 5 days of MI training • More than 5 days of MI training
MI Skill Level	VASE-R (Rosengren, et al. 2005)	5 subscales include: • Reflective listening • Responding to resistance • Summaries • Eliciting change talk • Developing discrepancy	0 – 36 score range
Organizational Climate	Survey of Organizational Functioning (SOF) in PPI Counselor Survey	Sample items from each SOF Organizational Climate subscale: Mission: This program operates with clear goals and aims Cohesion: Staff here all get along very well.	Mean subscale score is computed from a Likert scale from disagree strongly, disagree, uncertain, agree, and agree strongly.

		Autonomy: Staff members are given too many rules here. Communication: Program staff is always kept well informed. Stress: Staff members often show signs of stress and strain. Change: Novel treatment ideas by staff are discouraged.	

Table 3.5 Description of Study Variables (Continued)

Variable	Data Source	Question Item	Response choices
Supportive Attitudes related to MI	PPI Counselor Survey	Sample items: • I do not think there is enough evidence of motivational interviewing. • I think motivational interviewing is an effective treatment method.	Mean subscale scores are computed from a Likert scale: From disagree strongly, disagree, uncertain, agree, and agree strongly.
Motivation to Use MI	PPI Counselor Survey	Q35. At the present time, how ready do you feel to use Motivational Interviewing techniques with your clients?	Likert scale: (1) I'm not at all ready to use Motivational Interviewing techniques with my clients. (2) I'm thinking about using Motivational Interviewing techniques with my clients. (3) I'm planning to and making a commitment to use Motivational Interviewing techniques with my clients. (4) I'm actively working on using Motivational Interviewing techniques with my clients. (5) I've already been using Motivational Interviewing and will maintain its use with my clients.
Use of MI	PPI Counselor Survey	Q31. With what percent of your clients do you use Motivational Interviewing techniques?	Likert scale: (1) None of my clients (2) About 25% of my clients (3) About 50% of my clients (4) About 75% of my clients (5) All of my clients

Chapter 4

Study Results

4.1 Introduction

This chapter presents the results of data analysis procedures used to answer the study's research hypotheses. These hypotheses are aimed at understanding how counselor characteristics may influence outpatient substance abuse counselors' skill level in motivational interviewing, and their reported use of motivational interviewing with their clients. The chapter begins with a *post hoc* power analysis, followed by a presentation of descriptive statistics that describe the study sample and the variables used in the analysis, including a description of principal components analysis for one of the independent variables. A discussion of how the data meet the assumptions of multiple regression is then presented, followed by the results of data analysis conducted in three steps: (1) testing for direct effects among variables; (2) testing for mediation among variables; and (4) use of linear regression to identify counselor characteristics associated with MI skill level, and with counselors' use of motivational interviewing. The results of these three steps are presented sequentially by study hypothesis; the results of the first and second steps help to identify variables entered into regression analyses in the third step. Results from the second and third steps offer an empirical basis for a tentative model of how counselor characteristics influence counselors' MI skill level, and their use of motivational interviewing. Finally, a summary of statistically significant findings is

presented. Chapter 5 discusses the clinical significance of both the null and significant findings.

4.2 Post Hoc Power Analysis

A *post hoc* power analysis was conducted to assess whether the study sample size is sufficient to identify an acceptable effect size if statistically significant results are obtained. Power is the "probability of correctly rejecting the null hypothesis when it is false, that is, correctly finding a hypothesized relationship when it exists" (Hair et al., 1995, p. 2). Because there is little research about correlates of counselors' use of motivational interviewing, a moderate effect size of .15 is used. Nelson and Steele (2007) identified training, perceived openness of the setting to EBPs, and attitudes related to treatment research as significant predictors of evidence-based practices, but no research has been conducted looking specifically at counselor characteristics associated with the use of motivational interviewing. Based on Cohen's (1992) recommended effect size for multiple regression, a medium effect size of .15 is used, with an alpha level of .05, and power level of .80. Cohen recommends that with these parameters, 3 predictor variables can be used in a regression analysis with a sample size of at least 76. According to G*power 3.0 software, assuming this effect size (.15) and using a significance level of .05 with 3 independent variables and the lowest sample size, the minimum sample size needed is 77. After data collection was completed, a sample size of 89 was obtained. Due to missing data, the analyses that contain three variables only have 74 cases, resulting in .79 power. With the exception of analyses that include the *MI Skill Level* measure (where there are only 43 cases with data for all variables) the direct effect regression analyses

with two predictors have ample power. Assuming a medium effect size of .15 and using a significance level of .05, with 2 independent variables, the power available is approximately .91. Figure 4.1 below illustrates the parameters used in the power analysis for the full regression model.

Figure 4.1

Graph of Post Hoc Power Analysis for Multiple Regression

F tests – Multiple Regression: Omnibus (R^2 deviation from zero)
Number of predictors = 3. Effect size f^2 = 0.15. α err prob = 0.05
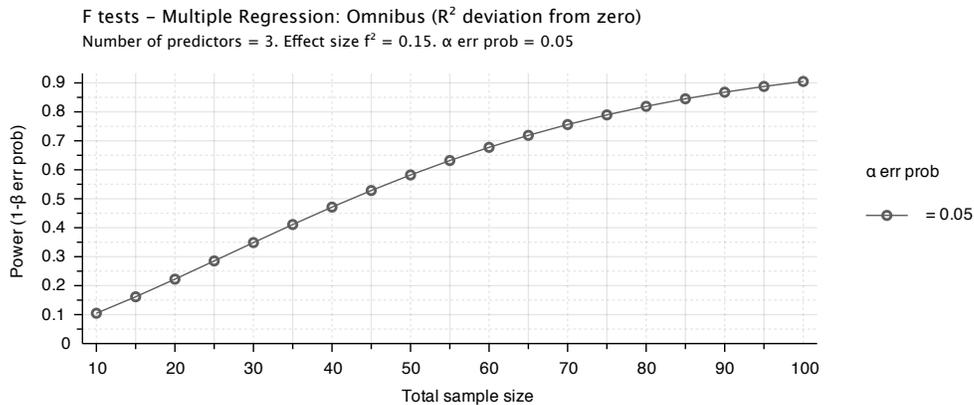
4.3 Data Analysis Methods

Counselor survey data was collected through the online survey tool, Survey Monkey, and then downloaded into Microsoft Excel. Data were then imported into the Statistical Package for the Social Sciences v. 18 (SPSS) for analysis. Counselors' VASE-R answer booklets and PPI Counselor Survey responses were matched based on demographic characteristics (birth date, gender, ethnicity, and clinic zip code).

4.4 Sample Description

Due to study attrition, and the merger of clinics, by the end of the PPI study only 25

clinics were participating. This study uses data from the end-of-study counselor survey administration (N=68) and an additional one-year-follow-up administration (N=21) conducted to increase sample size for this study. The total sample of 89 counselors comes from 25 different clinics. The response rate for the PPI Counselor Survey among counselors employed by these 25 clinics is 73 percent. This is an approximate measure based on responses by clinic directors to a PPI Director Survey in which they reported the number of counselors working at their clinics. It is possible that not all of the counselors employed by the clinic were offered the opportunity to complete the survey if the director did not forward their names to the PPI study during the recruitment period. Therefore, the response rate is likely higher among those counselors who were given the opportunity to participate.

Additional data collection was conducted to obtain a measure of motivational interviewing skill with a convenience sample of 14 clinics from the 25 participating clinics. Clinics were included who responded to a request to participate. The VASE-R was administered to 50 counselors employed by these 14 clinics during 2008-2009. The entire sample was not included for this additional data collection due to some clinics' decision not to participate.

Table 4.1 provides descriptive statistics for the study sample. More than half of the respondents were women (69%). The sample was mainly comprised of respondents describing themselves as Caucasian (69.6%). A smaller percentage identified as African American (7.8%), Asian (1%), and "More than one race" (1%). Twenty percent of respondents did not indicate their ethnicity. Counselors in the sample were on average

46.7 years old, and had worked in the drug treatment field an average of 8.6 years. They reported working at "this program or clinic" an average of 3.7 years (SD= 4.23), and at their current position an average of three years (SD= 3.99).

In terms of highest educational degree obtained, the same percent of counselors had "attended some college but not earned a degree" (28%) as those who had earned a Master's degree (28%). Seventeen percent had earned an Associate's Degree, 22% had earned a Bachelor's degree, one percent had earned a high school degree, and one percent had earned a doctoral degree or equivalent. Two percent reported a degree categorized as "other." Respondents also reported their discipline/profession. Close to 80% reported their profession as Addictions Counseling, 30% as Other Counseling, 22.5% as Psychology, 18.8% as Criminal Justice, 18.8% as Social Work/Human Services, 12.5% as Administration, 8.8% as Education, 5.2% as Other, and 1.3% percent reported each of the following disciplines: Vocational Rehabilitation, Medicine (Primary Care), Medicine (Psychiatry), Medicine (Other), and Nurse Practitioner.

Table 4.1

Descriptive Statistics for Counselors in Sample

Descriptive Variable	Mean	SD
Age	46.72	11.66
Years worked in the drug treatment field	8.63	8.1
Years worked at this program or clinic	3.74	4.23
Years worked at current position	3.00	3.99
	Frequency	Percent
Gender		
Female	61	68.5
Male	25	28.1
Hispanic affiliation		
Hispanic or Latino	28	31.4
Ethnicity		
American Indian or Alaskan Native	0	0
Asian	1	1.1
African American	7	7.8
Native Hawaiian or Other Pacific Islander	0	0
White	62	69.6
More than one race	1	1.1
Other	0	0
Missing	18	20.2
Highest Educational Degree		
High School Degree	1	1.2
Some College, no Degree	24	27.9
Associate's Degree	15	17.4
Bachelor's Degree	19	22.1
Master's Degree	24	27.9
Doctoral degree or equivalent	1	1.2
Other	2	2.3
Addictions Certification Status		
Not Certified or licensed in addictions	25	30.1
Currently certified or licensed	47	56.6
Previously certified or licensed but not now	11	13.3
*Discipline/profession**		
Addictions Counseling	63	78.8
Other Counseling	24	30.0
Education	7	8.8
Vocational Rehabilitation	1	1.3
Criminal Justice	15	18.8
Psychology	18	22.5
Social Work/Human Services	15	18.8
Medicine (Primary Care)	1	1.3
Medicine (Psychiatry)	1	1.3
Medicine (Other)	1	1.3
Nurse Practitioner	1	1.3
Administration	10	12.5
Other	4	5.2

Note. *Respondents were instructed to mark all disciplines/professions that applied to them

Almost 57% of counselors reported currently being certified or licensed in Addictions, while 30% reported never being certified or licensed, and 13% reported previously but not currently holding certification or licensure in Addictions.

As mentioned earlier, the sample is comprised of 89 counselors from 25 different outpatient substance abuse clinics in Texas. Table 4.2 lists the clinic location, number, and percent of counselors in the sample.

Table 4.2

Number and Percent of Sample from each Clinic

Clinic	Location	Number	Percent
DAPA Family Recovery Program	Houston	10	11.2
Recovery Center of Cameron County	Brownsville	10	11.2
Austin Recovery	Austin	9	10.1
Patrician Movement	San Antonio	7	7.9
Alice Counseling Center	Alice	6	6.7
Managed Care Center	Lubbock	6	6.7
Amarillo Council on Alcoholism and Drug Abuse	Amarillo	5	5.6
Central Texas Council on Alcoholism and Drug Abuse	Killeen	4	4.5
Helen Farabee Regional Mental Health and Mental Retardation	Wichita Falls (location 1)	4	4.5
Central Texas Council on Alcoholism and Drug Abuse	Temple	3	3.4
Association for the Advancement of Mexican Americans	Edinburg	3	3.4
Volunteers of America	Houston	3	3.4
Freeman Center	Waco	2	2.2
Alice Counseling Center	Falfurrias	2	2.2
Association for the Advancement of Mexican Americans	Houston	2	2.2
South Texas Substance Abuse Recovery Services	Corpus Christi	2	2.2
Gulf Coast Center	Galveston	2	2.2
Lifetime Recovery	San Antonio	2	2.2
The Right Step	Houston	1	1.1
Helen Farabee Regional Mental Health and Mental Retardation	Wichita Falls (location 2)	1	1.1
Turning Point	Houston	1	1.1
Volunteers of America	Conroe	1	1.1
Volunteers of America	Huntsville	1	1.1
Plainview Serenity Center	Plainview	1	1.1
Recovery Center of Cameron County	Harlingen	1	1.1
Total		89	100.0

The study sample comes from five main geographic areas of Texas. Twelve counselors (13.5% of the sample) are from three clinics in West Texas. Twenty-seven counselors are from six clinics in Central Texas, representing 30.3 percent of the sample, and 22 counselors (24.7%) are from six clinics in South Texas. An additional 23 counselors (25.8%) are from nine clinics in southeast Texas. Finally, five counselors (5.6%) are from two clinics in North Texas. Figure 4.2 illustrates the locations of the clinics throughout Texas.

Figure 4.2

Geographic Locations of Clinics in Study Sample

Note. The number of counselors from each city is indicated next to each city name.
If a city has more than one clinic participating, the number of clinics is noted in parentheses.

4.5 Descriptive Statistics for Independent and Dependent Variables

This section provides the descriptive statistics for the independent and dependent variables used in the analyses. Table 4.3 reports these values in detail.

Table 4.3

Descriptive Statistics for Study Variables

Variable	N	Minimum value	Maximum value	Mean	SD
Amount of MI Training	78	1	7	2.57	1.3
MI Skill Level (total VASE-R score)	50	4	32	18.3	8.1
Organizational Climate	84	.4	4.2	3.34	.55
Readiness to Use MI	79	1	5	4.01	1.2
Supportive Attitudes related to MI	80	1.2	5.0	3.47	1.0
Use of MI	78	1	5	3.48	1.5

MI Skill Level

The Video Assessment of Simulated Encounters-Revised (VASE-R) (Rosengren et al., 2005) was used to assess counselors' skill level in motivational interviewing. Fifty counselors from 14 clinics completed this assessment instrument. There are fewer respondents for this measure than for other measures because only a convenience sample of the total sample who had responded to the PPI Counselor Survey were offered the opportunity to complete the VASE-R instrument. Counselors obtained an average VASE-R score of 18.3. The range of scores was 4 to 32 with a highest possible score of 36. The mean score of 18.3 is not considered a high skill level; according to the VASE-R developers, total scores at or above 27 suggest general MI proficiency. Thus, the average score of 18.3 suggests a general lack of MI proficiency among participants in this study's

sample. Table 4.5 presents VASE-R scores in different ranges. Twelve (24.5%)

counselors scored between 0-9, 16 (32.7%) scored between 10-19, 17 (34.7%) scored

between 20-29, and 4 (8.2%) scored between 30-34.

The VASE-R is comprised of five subscales that measure different techniques used

as part of motivational interviewing. Specific items make up each subscale. For example,

Eliciting Change Talk is calculated by summing the points earned on item numbers 3, 6

and 9, each worth two points. *Eliciting Change Talk* is worth 6 total points, and the mean

score earned for this subscale was 2.52 (SD=1.8). The mean score earned for the

remaining subscales is as follows: *Summarizing*, worth five points, is 2.20 (SD=1.3);

Developing Discrepancy, worth six points, is 3.02 (SD=1.9); *Responding to Resistance*,

worth 10 points, is 4.82 (SD=3.1) and *Reflective Listening*, worth eight points, is 5.04

(SD=2.5). These values are presented in Table 4.4.

Table 4.4

Descriptive Statistics for VASE-R Subscales

Variable	N	Minimum value	Maximum value	Mean	SD
Eliciting Change Talk	50	0	6	2.52	1.8
Summarizing	50	0	5	2.20	1.3
Developing Discrepancy	50	0	6	3.02	1.9
Responding to Resistance	50	0	10	4.82	3.1
Reflective Listening	50	0	8	5.04	2.5

Amount of MI Training

     Amount of MI Training was measured with a Likert scale ranging from one to seven whereby respondents reported the number of days of MI training they had received. (Respondents reporting 4-8 hours were treated as receipt of one day of training.) The mean value reported was 2.57 (SD=1.3). Table 4.5 presents the number of respondents reporting each amount of training received: 24 respondents (30.8%) indicated receiving no training in motivational interviewing; 23 (29.5%) had received 4-8 hours of training, 13 (16.7%) had received two days of training; 14 (17.9%) had received three days of training, one (1.3%) had received four days of training, one (1.3%) had received five days of training and two (2.6%) had received more than five days of training.

Table 4.5

Descriptive Statistics for Categorical Responses

Variable	Response Choices	Number	Percent
Amount of MI Training	• Never received training	24	30.8
	• 4-8 hours of training	23	29.5
	• 2 days of training	13	16.7
	• 3 days of training	14	17.9
	• 4 days of training	1	1.3
	• 5 days of training	1	1.3
	• More than 5 days of training	2	2.6
MI Skill Level	Score ranges:		
	• 0-9	12	24.5
	• 10-19	16	32.7
	• 20-29	17	34.7
	• 30-34	4	8.2
	• 27 or above (proficiency)	10	20.0
Motivation to Use MI	• …not at all ready to use MI	5	6.3
	• …thinking about using MI	6	7.6
	• …planning to use MI	5	6.3
	• …actively working on using MI	30	38.0
	• …already using MI and will maintain use	33	41.8
Use of MI	• None of my clients	12	15.6
	• About 25% of my clients	10	13.0
	• About 50% of my clients	9	11.7
	• About 75% of my clients	21	27.3
	• All of my clients	25	32.5

Motivation to Use MI

As reported in Table 4.5, most respondents (almost 80%) indicated that they are either actively working on using MI with their clients, or are already using MI and will maintain their use of it. Thirty-three (41.8%) reported actively using MI and planning on maintaining use of it with their clients; 30 (38.0%) reported actively working on using MI with their clients; five (6.3%) reported planning to and making a commitment to use MI; six (7.6%) were thinking about using MI; and only five (6.3%) admitted that they are not at all ready to use MI with their clients. As reported in Table 4.3, the mean level of *Motivation to use MI* on a 5-point Likert scale was 4.01 (SD=1.2).

Use of Motivational Interviewing (MI)

Use of MI was measured with a 5-point Likert scale containing responses to the question, "With what percent of your clients do you use MI?" The mean score for *Use of MI* was 3.48 (SD=1.46). As presented in Table 4.3, 12 (15.6%) respondents reported use of MI with "none of their clients," 10 (13.0%) with "about 25% of their clients"; 9 (11.7%) with "about 50% of their clients"; 21 (27.3%) with "about 75% of their clients," and 25 (28.1%) with "all of their clients."

Organizational Climate

This variable is a subscale of the *Survey of Organizational Functioning* survey (TCU Institute of Behavioral Research, 2008). The subscale was described in Chapter 3. It was calculated as the mean of the means of the Organizational Domain subscales: Organizational Mission, Organizational Cohesion, Organizational Autonomy, Organizational Stress, and Organizational Change. Each of the subscales was measured with a 5-point Likert scale where 1=strongly disagree and 5=strongly agree. The mean

score of *Organizational Climate* is 3.34 (SD=.55).

Supportive Attitudes related to MI

This construct is based on the results of the principal components analysis in which five items measuring supportive attitudes related to the use of MI loaded onto a single factor. The factor analysis is described in the following section. The question items in the construct were measured with a Likert scale ranging from 1 to 5. The mean value for this scale was 3.47 (SD=.94), with a range of 1.20 to 5.0.

4.6 Principal Components Analysis of Supportive Attitudes related to MI Scale

A scale comprised of 19 items measuring counselors' attitudes and behaviors related to MI was developed by the Process and Practice Improvement Project. Examples of these items are: "*I was encouraged to learn about Motivational Interviewing by my agency*," "*I sought information about Motivational Interviewing on my own initiative,*" "*I have read research findings related to Motivational Interviewing*," and "*Our staff has discussions about interventions that are evidence-based*." To obtain a statistically supported scale related to counselor attitudes related to MI, a principal components analysis was conducted to assess whether the items are part of a factor structure that would support the use a single score for analysis purposes. SPSS 18.0 was used to conduct the principal components analysis. All items in the original scale were initially tested. Screening criteria for principal components analysis required six items to be removed because they did not exhibit individual measures of sampling adequacy at or above .50 as observed in the anti-image correlation matrix, and two items were removed because less than half of their variance was explained by the factor as indicated by a

communality value less than .50. In addition, two items loaded at more than .40 on more than one component, indicating they have complex structure, and were removed from the analysis. After these variables were removed, the remaining nine variables had acceptable correlations for individual measures of sampling adequacy; the overall measure of sampling adequacy, using the Kaiser Meyer Olkin test, was .762 with a significant Bartlett's Test of Sphericity, 317.23, $p < .001$. Figure 4.3 shows a scree plot for the two components identified.

Figure 4.3

Scree Plot Illustrating Variance Explained by Two Components
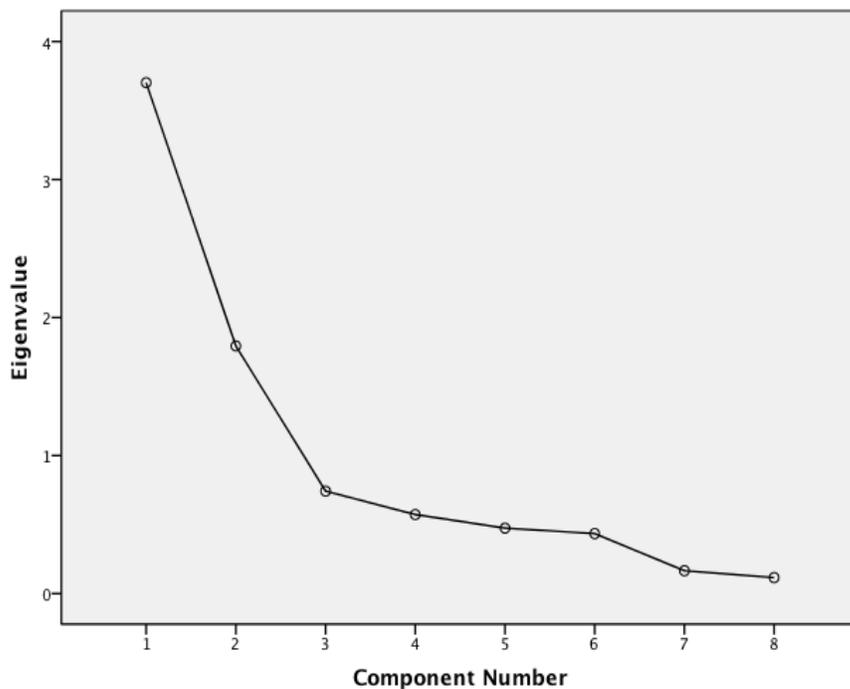
Two components were identified based on eigenvalues greater than 1.0

Supportive attitudes related to motivational interviewing had an eigenvalue of 3.70, and

explained 46.27% of the variance. Items that loaded onto this factor are (a) "I possess knowledge of motivational interviewing techniques," (b) "I am confident using motivational interviewing techniques in my work," (c) "I think motivational interviewing is an effective treatment method," (d) "Clients have had motivational interviewing strategies included as part of their treatment," and (e) "I was encouraged to learn about motivational interviewing by my agency." *Non-supportive* attitudes related to motivational interviewing had an eigenvalue of 1.79 and explained 27.42% of the variance. Items that loaded onto this component are (a) "I do not think there is enough evidence of motivational interviewing," (b) "I think there are better treatment alternatives to motivational interviewing that I would rather use," and (c) "I think motivational interviewing is inconsistent with the clinic." Table 4.6 presents the correlation matrix for the items.

Table 4.6

Correlation Matrix for Principal Components Analysis

	1	2	3	4	5	6	7	8
I possess knowledge of motivational interviewing techniques	.714[a]							
I am confident using motivational interviewing techniques in my work	-.792	.646[a]						
I do not think there is enough evidence of motivational interviewing	-.060	-.029	.786[a]					
I think motivational interviewing is an effective treatment method	-.150	-.027	.165	.937[a]				
I think there are better treatment alternatives to motivational interviewing that I would rather use	.034	-.068	-.366	.064	.742[a]			
I think motivational interviewing is inconsistent with the clinic	-.036	.019	-.254	-.027	-.274	.779[a]		
Clients have had motivational interviewing strategies included as part of their treatment	-.153	-.068	.160	-.075	-.051	.046	.800[a]	
I was encouraged to learn about motivational interviewing by my agency	-.241	.239	.025	-.179	.045	-.001	-.647	.756[a]

[a] Measure of Sampling Adequacy

The cumulative variance explained by the two factors is 68.70%. The first factor, measuring supportive attitudes related to MI, has good reliability as evidenced by Cronbach's α=.875, while the second factor measuring negative attitudes related to MI, has acceptable reliability for nomothetic research, with Cronbach's α=.705. Caution should be heeded because 74 cases were included in the analysis rather than the preferred scenario of more than 100 cases.

The factor containing items indicating supportive attitudes related to motivational interviewing was chosen for use in further analyses. Based on its high reliability and on subjective judgment of the items, it was chosen as the best construct to measure attitudes related to MI.

4.7 Bivariate Correlations

Relationships between the independent variables and two dependent variables, *MI Skill Level*, and *Use of MI* were assessed with Pearson's correlation coefficient.

Table 4.7 presents results of bivariate tests between independent and dependent variables. *Highest Educational Degree*, *Amount of MI Training* and *Motivation to Use MI* show statistically significant relationships to *MI Skill Level*. *Supportive Attitudes related to MI* and *Organizational Climate* are not related to *MI Skill Level* at a bivariate level. *Amount of MI Training*, *Motivation to Use MI*, and *Supportive Attitudes related to MI* show statistically significant relationships to *Use of MI*. *Highest Educational Degree*, *MI Skill Level*, and *Organizational Climate* are not related to *Use of MI* at a bivariate level.

Table 4.7

Bivariate Correlations for Independent and Dependent Variables

	Dependent variable			
	MI Skill Level		Use of MI	
Independent Variable				
	r	*p*	r	*p*
Highest Educational Degree	.314**	.030	-.051	.660
Amount of MI Training	.332**	.024	.296**	.009
MI Skill Level	--	--	.067	.664
Motivation to Use MI	.378***	.010	.559***	.000
Organizational Climate	-.121	.413	.181	.113
Supportive Attitudes related to MI	-.095	.524	.571***	.000

Note. ***Significant at the .001 level; **Significant at the .05 level

4.8 Examination of Data for Multiple Regression

Evaluation of Data Assumptions for Multiple Regression

Multiple regression assumes certain features of the variables included in the analysis. These assumptions include normality of the independent and dependent variables' distributions, linearity between the independent variables and the dependent variable, and homoscedasticity. In addition, missing data analysis and outlier analysis are required.

Missing Data Analysis

Analysis was undertaken to assess any concerns with the dataset due to missing data. Missing data analysis is presented for each of the direct effects regression analyses, as well as for multiple regression analyses.

Missing Data Analysis for Direct Effects Regression Analyses

For each of the direct effects hypotheses, when controlling for *Highest Educational Degree*, there are two independent and one dependent variable used in each analysis. Missing data analysis was conducted to identify cases that have data for all variables in each analysis. Forty-six cases have values for all variables needed to test Hypotheses 1a, 4a, and 5a; 45 cases have values for the all variables needed to test Hypothesis 2a; and 47 cases have values for the all variables needed to test Hypothesis 6a. Seventy-six cases have values for all three variables needed to test Hypotheses 3a, 4b, 5b, and 6b. SPSS 18.0 automatically removes cases that do not contain values for all variables included in each regression. Because of the fewer number of cases with a measure of *MI Skill Level* for Hypotheses 1a, 2a, 4a, 5a and 6a, a *post hoc* power analysis was conducted to assess whether sufficient power is available to detect effects. According to G*power 3.0 software, with a sample size of 45, assuming a medium effect size of .15 and using a significance level of .05, with 2 independent variables, the power available is approximately .72. As .72 is lower than the recommended .80 power, there is the risk of making a Type II error, or failing to reject a null hypothesis when it is not true. For Hypotheses 3a, 4b, 5b, and 6b (N=76) assuming a medium effect size of .15 and using a significance level of .05, with 2 independent variables, the power available is approximately .91, which is more than sufficient.

Missing Data Analysis for Multiple Regression Analyses

The following three variables are used in the full regression analysis (based on regression results of direct effects hypotheses, reported below): *Educational Degree*

109

(control), *Motivation to Use MI*, and *Supportive Attitudes related to MI*. No variables in the analyses are missing more than half the number of cases in the dataset.

A bivariate correlation matrix was created and analyzed to detect whether a nonrandom pattern of missing data was present among the variables used in the full regression analysis. None of the correlations among the missing/valid variables were statistically significant.

Outlier Analysis

No outliers were detected in the dataset.

Normality of Variables

To evaluate normality, all interval/ratio level variables were analyzed for normality through evaluation of skewness and kurtosis statistics. The skewness and kurtosis values should fall between -1 and +1 to indicate a normal distribution. Skewness is related to the symmetry or tilt of the distribution where a normal distribution has a skewness of 0. Kurtosis reflects the peakedness of the distribution, which indicates a too tall or too flat spread of values. The lack of statistical significance for the Kolmogorov-Smirnov test indicates a normal distribution. Table 4.8 reports normality statistics for each study variable. Among the seven independent and control variables tested for normality, two (*Use of MI* and *Motivation to Use MI*) do not have normal distributions. Five variables (*Amount of MI Training, MI Skill Level, Supportive Attitudes related to MI, Organizational Climate,* and *Highest Educational Degree*) exhibit normal distributions.

Table 4.8

Statistics Used to Evaluate Normality of Variables' Distribution

Variable	Skewness	Kurtosis
Use of MI	-.551	-1.105
Amount of MI Training	.780	.472
MI Skill Level	-.054	-.940
Supportive Attitudes related to MI	-.826	-.109
Organizational Climate	-.766	.144
Readiness to Use MI	-1.302	.906
Highest Educational Degree	.115	-.682

Use of MI

The main dependent variable was first tested for normality. *Use of MI* had an

acceptable skewness value of -.551, but had kurtosis of -1.105. The Kolmogorov-

Smirnov statistic was .224 ($p < 0.001$), also indicating a non normal distribution. The

square root transformation of this variable produced skewness of -.799 and kurtosis of

-.742. No other transformation (loglinear or inverse) produced improved skewness

values.

Motivation to Use MI

Motivation to Use MI was slightly negatively skewed (-1.302) with an acceptable

kurtosis value (.906). No transformation (square root, loglinear or inverse) produced

improved skewness values.

To determine if the square root transformation of *Use of MI* should be used in the

analysis, a regression model with the un-transformed *Use of MI* variable was tested to

establish a baseline value for the model, $R^2 = .514$. A revised model was subsequently

tested using the transformed variable (the square root of *Use of MI*), $R^2 = .502$. Because

111

the second regression model did not yield at least a two percent increase in the strength of the relationship between the independent variables and dependent variable, the un-transformed *Use of MI* variable was used.

Because of the robustness of multiple regression concerning violations of normality, those variables with non-normal distributions (*Use of MI* and *Motivation to Use MI*) were used in each regression (Hair et al., 1995). Caution should be taken in interpretations of data results due to these variables' non-normal distributions.

Homoscedasticity

Homoscedasticity occurs when the variance of errors is the same across all levels of the independent variables, and is a concern for dichotomous variables. As there are no dichotomous variables used in this study, homoscedasticity was not tested.

Linearity

ANOVA tests for linearity were conducted to identify any pairs of independent and dependent variables with non linear relationships. The following pairs of variables exhibited linear relationships: *Educational Degree* and *Use of MI* ($F = 1.32$, $p = .268$), *Amount of MI Training* and *Use of MI* ($F = 1.11$, $p = .364$), *MI Skill Level* and *Use of MI* ($F = 1.42$, $p = .225$), *Supportive Attitudes related to MI* and *Use of MI* ($F = 1.77$, $p = .314$), *Organizational Climate* and *Use of MI* ($F = 1.95$, $p = .158$), and *Motivation to Use MI* and *Use of MI* ($F = 1.55$, $p = .268$).

The following pair of variables also showed linear relationships: *Educational Degree* and *MI Skill Level* ($F = .208$, $p = .890$), *Motivation to Use MI* and *Use of MI* ($F = 1.95$, $p = .137$), *Supportive Attitudes related to MI* and *MI Skill Level* ($F = .921$,

p=.552). Two non-linear relationships were identified: *Organizational Climate* and *MI Skill Level* (*F* =6.47, *p*=.013), and *Amount of MI Training* and *MI Skill Level* (*F* =2.73, *p*=.042). No transformations of *Organizational Climate* and *Amount of MI Training* produced linear relationships with *MI Skill Level*. Caution should be taken in interpreting in relationship between *Organizational Climate* and *MI Skill Level* and *Amount of MI Training* and *MI Skill Level*.

Control Variable

In each analysis, *Highest Educational Degree* was treated as a control variable. Rogers' Diffusion of Innovation theory indicates that early adopters of new practices tend to be more highly educated, and Aarons (2004) reports that practitioners with more education have a more favorable attitude toward evidence-based practices, but education was not found to be predictive of self-reported use of EBPs (Nelson & Steele, 2007). Further, counselors with Bachelor's or Master's degrees may have been exposed to motivational interviewing in their education. Respondents were asked to indicate their highest level of education from the following options: "no high school diploma or equivalent," "high school diploma or equivalent," "some college but no degree," "Associate degree," "Bachelor's degree," "Master's degree," "Doctoral degree or equivalent," or "Other."

4.9 Controlling for Clinic Differences on Independent Variables

Because there is the potential for counselors' clinic affiliation to explain the value of the study variables, the means of clinics were grouped into low and high groups to assess whether the mean level of a variable at the clinic level plays a role in each

analysis. Dummy variables were created for *Low Mean Motivation to Use MI*, *High Mean Motivation to Use MI*, *Low Mean MI Skill Level*, *High Mean MI Skill Level*, *Low Mean Prior MI Training*, *High Mean Prior MI Training*, *Low Mean Organizational Climate*, *High Mean Organizational Climate*, *Low Mean Supportive Attitudes related to MI*, *High Mean Supportive Attitudes related to MI*, and were assigned to each case. These variables were entered into direct effects regression analyses to assess whether they were statistically significantly related to either *MI Skill Level* or *Use of MI*. None of these dichotomous variables were statistically significant, indicating that there do not appear to be differences in the values across clinics.

4.10 Testing for Direct Effects

The following section discusses direct effects identified among study variables, presented by each of the nine relevant study hypotheses. After controlling for *Highest Educational Degree*, the relationship between each of the independent variables (*Amount of MI Training*, *Supportive Attitudes related to MI*, *Organizational Climate*, *Motivation to Use MI*) and the dependent variable (*MI Skill Level)* was tested. Moreover, the relationships between each of the independent variables (*Amount of MI Training*, *MI Skill Level*, *Supportive Attitudes related to MI*, *Organizational Climate*, *Motivation to Use MI*) and the dependent variable (*Use of MI)* were tested. Multicollinearity was not present in any of the regression analyses, nor was serial correlation of errors. All Durbin-Watson statistics fell between 1.5 and 2.5.

Hypothesis 1a: *Amount of MI Training* is positively related to *MI Skill Level.*

After controlling for *Educational Degree*, *Amount of MI Training* was not statistically significantly related to *MI Skill Level*, N=46, (R^2 change=.070, *p*=.072).

Hypothesis 4a: *Motivation to Use MI* is positively related to *MI Skill Level.*

As Table 4.9 reports, after controlling for *Educational Degree*, the only variable with a significant relationship to *MI Skill Level* was *Motivation to Use MI*, N=46, (R^2 change =.154, *p*= .006), ($F_{1,41}$=6.45, *p*=.004), (t= 2.88, *p*=.006) with a weak relationship (R=.489). After making a Bonferroni adjustment (.05/6=.008) to account for repeated testing of the same data and to reduce the Type I error rate, the relationship remained statistically significant. Thus, *Motivation to Use MI* contributes 15.4% of the variance in *MI Skill Level*.

Hypothesis 5a: *Organizational Climate* is positively related to *MI Skill Level.*

Organizational Climate was not statistically significantly related to *MI Skill Level*, N=46, (R^2 change =.005, *p*= .636).

Hypothesis 6a: *Supportive Attitudes related to MI* is positively related to *MI Skill Level.*

Supportive Attitudes related to MI was not statistically significantly related to *MI Skill Level*, N=47, (R^2 change =.003, *p*= .722).

115

Table 4.9

Regression Models Associating Counselor Characteristics with MI Skill Level

Model	Independent Variable	Control (Ed. Degree)	Direct effect	R	R^2 change	*p*	B	SE (B)	N
1	Amount of MI Training	0.061	.112	.391	.070	.072	1.55	.840	46
2	Supportive Attitudes related to MI	0.071	.052	.308	.003	.722	-.424	1.18	47
3	Organizational Climate	0.088	.072	.489	.005	.636	-1.443	3.03	46
4	Motivation to Use MI	.064	.202**	.489	.154	.006	2.79	.968	46

Note. **Significant at the .05 level

Another way to understand the relationship between *Motivation to Use MI* and *MI Skill Level* is to consider that *MI Skill Level* may contribute to counselors' *Motivation to Use MI.* To better understand this, another regression analysis was conducted (see Table 4.10). After controlling for *Highest Educational Degree, MI Skill Level* was statistically significantly related to *Motivation to Use MI*, N=46, (R^2 change=.165, *p*=.006), ($F_{2,41}$=4.6, *p*=.015), (t=2.88 *p* =.006). The R value of .429 represents a weak relationship among variables.

Table 4.10

Regression Results Associating MI Skill Level with Motivation to Use MI

Independent Variable	Control (Ed. Degree)	Direct effect	R	R^2 change	*p*	B	SE (B)
MI Skill Level	-.004	.144	.429	.165**	.006	.060	.021

Note: **Significant at the .05 level

Bias in MI Skill Level Respondents

Results of analyses using the *MI Skill Level* measure should be interpreted with caution due to the potential bias inherent in the sample of counselors who completed the measure. First, not all counselors were offered the opportunity to complete the measure, and secondly, among those who were offered the opportunity, some chose not to participate. Therefore, the measure is not representative of a particular group. It is possible that those who declined may have done so based on their own concerns about their skill level with MI, or based on their lack of training, attitudes related to it, or low usage of MI. In addition, this sample reflects an overall low level of MI skill based on measurement with the VASE-R. Thus, the relationship identified between *Motivation to Use MI* and *MI Skill Level* may be partly due to these biases.

The following presents results of bivariate tests used to identify counselor characteristics related to *Use of MI*.

Hypothesis 2a: *MI Skill Level* is positively related to the *Use of MI*.

After controlling for *Educational Degree,* an overall measure of *MI Skill Level* was not statistically significantly related to *Use of MI*, N=45, (R^2 change $=.050$, *p*$= .142$). One of the five subscales of the VASE-R, *Eliciting Change Talk*, was statistically significantly related to *Use of MI* (R^2 change$= .141$, *p*$= .011$). After making a Bonferroni adjustment (.05/6=.002), the relationship was no longer statistically significant.

Hypothesis 4b: *Motivation to Use MI* is positively related to *Use of MI*.

As reported in Table 4.11, after controlling for *Educational Degree*, *Motivation to use MI* was statistically significantly related to *Use of MI*, N=76, (R^2 change $=.353$,

p< .001), (*F* ₁,₇₂=19.78, *p*<.001, t=6.27, *p*<.001). After making a Bonferroni adjustment (.05/6=.008), the relationship remained statistically significant. The R value of .596 represents a moderately strong relationship among variables. Counselors' reported *Motivation to Use MI* contributes 35.3% of the variance in their reported *Use of MI*.

Table 4.11

Regression Results Associating Counselor Characteristics with Use of MI

Model	N	Independent Variable	Control (Ed. Degree)	Direct effect	R	R^2 change	*p*	B	SE (B)
1	76	Amount of MI Training	-.011	.101	.354	.123**	.002	.371	.117
2	45	MI Skill Level	.038	.067	.333	.050	.142	.042	.028
3	45	Eliciting Change Talk	.061	.203	.450	.141**	.011	.310	.116
4	76	Supportive Attitudes related to MI	-.011	.342	.600	.357***	.000	.860	.135
5	76	Organizational Climate	-.011	.006	.180	.030	.139	.575	.384
6	76	Motivation	-.012	.337	.596	.353***	.000	.730	.116

Note. ***Significant at the .001 level; **Significant at the .05 level

<u>Hypothesis 3a: *Amount of MI Training* is positively related to *Use of MI*.</u>

After controlling for *Educational Degree*, *Amount of MI Training* was positively related to *Use of MI*, N=76, (R^2 change = .123, *p*= .002), ($F_{1, 72}$ =5.17, *p*=.008), (t=3.18, *p*=.002). After making a Bonferroni adjustment (.05/6=.008), the relationship remained statistically significant. The R value of .354 represents a weak relationship among variables. *Amount of MI Training* contributes 12.3% of the variance in counselors' reported *Use of MI*.

<u>Hypothesis 5b: *Organizational Climate* is positively related to *Use of MI*.</u>

After controlling for *Educational Degree*, *Organizational Climate* was not statistically significantly related to *Use of MI*, N=76, (R^2 change= .030, *p*= .139), (*F* =1.22, *p*=.302).

Hypothesis 6b: *Supportive Attitudes related to MI* is related to *Use of MI.*

After controlling for *Educational Degree*, *Supportive Attitudes related to MI* was positively related to *Use of MI*, N=76, (R^2 change= .357, *p*<.001), (*F$_{1, 73}$* =20.5, *p*<.001), (t=6.38, *p*<.001). After making a Bonferroni adjustment, (.05/6=.008), the relationship remained statistically significant. The R value of .600 represents a moderately strong relationship among variables. *Supportive Attitudes related to MI* contributes 35.7% of the variance in counselors' reported *Use of MI*.

4.11 Mediation Analysis

A variable may be called a mediator "to the extent that it accounts for the relation between the predictor and the criterion" (Baron & Kenny, 1986, p. 1176). *Mediation* occurs when a predictor has an indirect effect on an outcome through a third variable. This indirect effect accounts for some to all of the main effect of the predictor on the outcome (Baron and Kenny, 1988).

The most common way for assessing mediation is based on use of the four steps promulgated by Baron & Kenny (1986). Preacher (2003) explains that, "mediation can be said to occur when (1) the independent variable significantly affects the mediator, (2) the independent variable significantly affects the dependent variable in the absence of the mediator, (3) the mediator has a significant unique effect on the dependent variable, and (4) the effect of the independent variable on the dependent variable shrinks upon the

addition of the mediator to the model." See Figure 4.4 below for an illustration of mediation.

Figure 4.4

Mediation Model
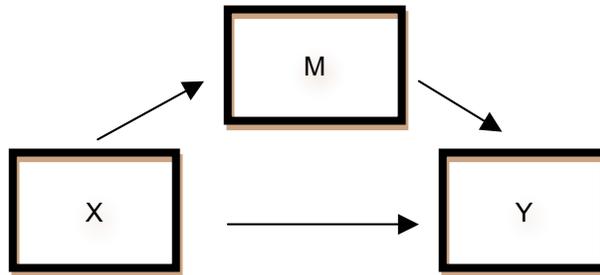
Ten study hypotheses (listed below) are concerned with mediation. Results are presented below based on each hypothesis meeting the four criteria listed earlier.

- Hypothesis 1b: *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

- Hypothesis 1c: *Organizational Climate* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

- Hypothesis 1d: *Supportive Attitudes related to MI* mediates the relationship between *Amount of MI Training* and *MI Skill Level*.

- Hypothesis 2b: *Motivation to Use MI* mediates the relationship between *MI Skill Level* and *Use of MI*.

- Hypothesis 2c: *Organizational Climate* mediates the relationship between *MI Skill Level* and *Use of MI*.

- Hypothesis 2d: *Supportive Attitudes related to MI* mediates the relationship between *MI Skill Level* and *Use of MI*.

- Hypothesis 3b: *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *Use of MI*.

- Hypothesis 3c: *Organizational Climate* mediates the relationship between *Amount of MI Training* and *Use of MI*.

- Hypothesis 3d: *Supportive Attitudes related to MI* mediates the relationship between *Amount of MI Training* and *Use of MI*.

- Hypothesis 3e: *MI Skill Level* mediates the relationship between *Amount of MI Training* and *Use of MI*.

Baron and Kenny (1986) offer four criteria that are required to establish mediation. The first is that the independent variable is related to the dependent variable, so that there is a relationship to be mediated. Three of the ten hypotheses (2b, 2c, and 2d) listed above did not meet the first criteria because *MI Skill Level* was not related to *Use of MI*, N=45, (r=.067, *p*=.664) (Hypothesis 2a). The remaining seven met the first criteria because *Amount of MI Training* was related to *MI Skill Level*, N=46, (Hypothesis 1a) (r=.332, *p*=.024), and *Amount of MI Training* was related to *Use of MI*, N=76, (Hypothesis 3a) (r=.296, *p*=.009).

The second criteria—that the independent variable be related to the potential mediating variable was met by the seven remaining hypotheses (1b, 1c, 1d, 3b, 3c, 3d, 3e). Table 4.13 reports the significant Pearson's correlations for each pair of variables.

For Hypotheses 1b and 3b, *Motivation to Use MI* and *Amount of MI Training*

121

were related, (r=.388, *p*=.001). For Hypotheses 1c and 3c, *Organizational Climate* and

Amount of MI Training were related (r=.297, *p*=.009). For Hypotheses 1d and 3d,

Supportive Attitudes related to MI and *Amount of MI Training* were related (r=.298,

p=.008). For Hypothesis 3e, *MI Skill Level* and *Amount of MI Training* were related

(r=.332, *p*=.024).

Testing the third criteria for mediation, that the mediator variable affects the

dependent variable, requires first controlling for the independent variable to be certain

that the mediator variable has a unique effect on the dependent variable. Five (1b, 1c, 1d,

3c, and 3e) of the seven remaining hypotheses did not meet the criteria. After controlling

for *Amount of MI Training*, *Motivation to Use MI* was not significantly related to *MI Skill*

Level (R^2 Change=.077, *p*=.056) (Hypothesis 1b). After controlling for *Amount of MI*

Training, *Organizational Climate* was not significantly related to *MI Skill Level* (R^2

Change=.025, *p*=.279) (Hypothesis 1c). After controlling for *Amount of MI Training*,

Supportive Attitudes related to MI was not significantly related to *MI Skill Level* (R^2

Change=.049, *p*=.125) (Hypothesis 1d). Hypothesis 3c also did not meet the criteria.

After controlling for *Amount of MI Training*, *Organizational Climate* was not

significantly related to *Use of MI* (R^2 Change =.009, *p*=.395). Regression results

indicated that after controlling for *Amount of MI Training*, *MI Skill Level* was not

significantly related to *Use of MI* (R^2 Change=.000, *p*=.949) (Hypothesis 3e). The two

remaining hypotheses met the third criteria for mediation. After controlling for *Amount of*

MI Training, *Motivation to Use MI* was significantly related to *Use of MI* (R^2 Change

=.230, *p*<.001) (Hypothesis 3b). After controlling for *Amount of MI Training*, *Supportive*

Attitudes related to MI was significantly related to *Use of MI* (R^2 Change =.255, $p<.001$)

(Hypothesis 3d).

Table 4.13.

Correlation Coefficients Among Study Variables

	1	2	3	4	5	6
MI Skill Level	--					
Supportive Attitudes related to MI	-.095 (p=.524)	--				
Organizational Climate	-.121 (p=.413)	.174 (p=.123)	--			
Readiness to Use MI	.378 ** (p=.010)	.364 *** (p=.001)	.017 (p=.881)	--		
Amount of MI Training	.332** (p=.024)	.298** (p=.008)	.297** (p=.009)	.388*** (p=.001)	--	
Use of MI	.067 (p=.664)	.571*** (p<.001)	.181 (p=.113)	.559*** (p<.001)	.296** (p=.009)	--

Note: ***Significant at the .001 level; **Significant at the .05 level

Baron and Kenny's fourth criteria for mediation requires establishing that "M completely mediates the X-Y relationship, and that the effect of X on Y controlling for M (path c') should be zero" (Baron & Kenny, 1986, p. 1176). This type of mediation is considered "full mediation." Mediation is also observed when the effect of the independent variable on the dependent variable shrinks upon the addition of the mediator to the model ("partial mediation"). Baron and Kenny suggest that, "because the social sciences investigate phenomena with many possible causes, partial mediation may be more realistic than full mediation" (p. 1176).

The presence of all four criteria can be informally assessed, but a more formal

way to assess statistical mediation is through the use of the Sobel test (Preacher & Hayes, 2004). To test the statistical significance of the reduction in beta weight, an online calculator was used to apply the Sobel test (Preacher & Leonardelli, 2003). For Hypothesis 3d, that *Supportive Attitudes related to MI* mediates the relationship between *Amount of MI Training* and *Use of MI*, the Sobel test indicated significant mediation, Sobel statistic = 1.98, $p=.047$. For Hypothesis 3b, that *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *Use of MI*, the test statistic indicates significant mediation (2.98, $p=.003$).

4.12 Multiple Regression to Identify Characteristics Contributing to MI Skill Level and Use of MI

In this final analysis section, two models are tested based on earlier direct effects where two variables were statistically significantly related to *MI Skill Level. Amount of MI Training* is also entered into the model to assess whether it contributes to *MI Skill Level* in a multiple regression.

The first model tests counselor characteristics associated with *MI Skill Level*. Using the hierarchical entry method, a significant model emerged ($F_{2,38}=4.42$, $p = 0.009$). One control variable, *Highest Educational Degree,* entered in the first model accounted for 8.5% of the variance in the *MI Skill Level* (Adjusted $R^2 = .085$). With the inclusion of *Motivation to Use MI* an additional 17.4% of the variance was explained (Adjusted $R^2 = .259$, and R^2 change$=.174$, $p=.018$). (*Amount of MI Training* was not a significant predictor in this model, t$=.740$, $p=.464$.) The overall R of .509 indicates that the relationships in the model have moderate strength.

Multicollinearity was not present in any of the regression analyses, nor was serial correlation of errors. All Durbin-Watson statistics fell between 1.5 and 2.5. Significant variables are shown in Table 4.14 below:

Table 4.14

Results of Regression of Characteristics Associated with MI Skill Level

Independent Variable	Control (Ed. Degree)	Direct effect	R	R^2 change	*p*	B	SE (B)	N
Motivation to Use MI	0.085	.259	.509	.174**	.018	2.57	1.08	46

Note: **Significant at the .05 level

Multiple Regression to Identify Characteristics Associated with Use of MI

The third model tested counselor characteristics associated with *Use of MI*. Using the hierarchical entry method, a significant model emerged ($F_{2,71}$=24.0, *p* < .001). *Highest Educational Degree* (the control variable) entered in the first model did not contribute to *Use of MI* (Adjusted R^2 = -.012). With the inclusion of *Supportive Attitudes related to MI* and *Motivation to Use MI*, an additional 50.1% of the variance was explained (Adjusted R^2 = .482), (R^2 change=.501, *p*<.001).

Both variables were found to be almost equally significant: *Supportive Attitudes related to MI* (t=4.61, *p*< .001) (Beta= .423) and *Motivation to Use MI* (t=4.59, *p*< .001) (Beta=.421). The overall R of .710 indicates that the magnitude of the relationships in the model is strong. Multicollinearity was not present in any of the regression analyses, nor was serial correlation of errors. All Durbin-Watson statistics fell between 1.5 and 2.5. Significant variables are shown in Table 4.15 below:

Table 4.15

Results of Regression of Characteristics Associated with Use of MI

Independent Variable	B	SE (B)	Beta
Readiness to Use MI	.517	.113	.421
Supportive Attitudes	.606	.131	.423

4.13 Summary of Results

Statistically significant findings were identified among direct and mediating relationships. Using multiple regression, a model of factors associated with skill level in motivational interviewing and a model of counselor characteristics associated with use of motivational interviewing were identified.

Among the nine hypotheses tested for direct relationships among study variables, after controlling for *Educational Degree,* only *Motivation to Use MI* was statistically significantly related to *MI Skill Level.* Among variables tested for their direct relationship with *Use of MI*, after controlling for *Educational Degree*, *Motivation to use MI, Amount of MI Training*, and *Supportive Attitudes related to MI* were each individually statistically significantly related to *Use of MI*.

Multiple regression was used to identify counselor characteristics that contribute to *MI Skill Level*, and to identify counselor characteristics that contribute to *Use of MI.* Two significant contributors were identified in a model of *MI Skill Level:* (1) *Highest Educational Degree* (a control variable), and (2) *Motivation to Use MI*. In another

regression, two significant contributors were identified in a model of *Use of MI:* (1)

Supportive Attitudes related to MI, and (2) *Motivation to Use MI*.

Two of the ten hypotheses tested for mediation were statistically significant. *Supportive Attitudes related to MI* partially mediated the relationship between *Amount of MI Training* and *Use of MI*, and *Motivation to Use MI* partially mediated the relationship between *Amount of MI Training* and *Use of MI*.

Chapter 5 discusses these findings, suggests practical and theoretical implications, and makes recommendations for practice and future research.

Chapter 5

Study Implications and Recommendations

5.1 Overview

The goals of this study were to explore how counselor characteristics may directly and/or indirectly relate to outpatient substance abuse counselors' skill level in motivational interviewing and their use of motivational interviewing with their clients. These characteristics include amount of motivational interviewing training, skill level in motivational interviewing, counselor perceptions of organizational climate, supportive attitudes related to motivational interviewing, and motivation to use motivational interviewing.

This chapter discusses the substantive significance of both the statistically significant and non-significant results of this study. It suggests practical and theoretical implications based on study findings, and then suggests how these findings can help to refine conceptual models of evidence-based practice and EBPs implementation. The study's strengths and limitations are presented, and finally, recommendations for practice and future research are made in light of the study's findings.

5.2 Practice Implications

The lack of a significant relationship identified between counselors' skill level in motivational interviewing and their use of motivational interviewing raises concerns regarding how well they are using the technique. The level of usage reported is relatively

high, but the mean skill level is low; only 20% of counselors are proficient in MI according to the skill measure used. Despite having very little training, and low skill levels, high usage of MI was reported by counselors. For example, although 24 counselors reported receiving no training in MI, only 12 counselors reported that they do not use MI with any of their clients. These descriptive statistics should raise concern for the quality of implementation of MI in this sample. Future research should explore these relationships with samples that have a more diverse range of training and skill.

Further, skill level did not mediate the relationship between *Amount of MI Training* and *Use of MI*. The implication of these findings is that counselors' skill is not impacting the extent of their use of MI, but rather that receipt of training is. Anecdotal evidence of practitioners' reported use of practices merely because they have received training, but not because they have achieved competency in a practice, is one explanation for these findings. Social desirability bias may be influencing their decision to report high usage of a practice in which they have received training. Miller et al. (2004) warn that receipt of training may lead some practitioners to assume they are sufficiently skilled to practice MI with their clients, and that counselors' self-perceived competence may have little or no relationship to their actual practice proficiency.

Another study aim was to understand how *Amount of MI Training* relates to counselors' *Use of MI*. After controlling for *Highest Educational Degree*, *Amount of MI Training* is related to *Use of MI*. But, when entered into a regression model of *Use of MI* alongside *Supportive Attitudes related to MI* and *Motivation to Use MI*, the relationship is

no longer significant. This finding may be due to the low level of training reported by the sample. Further research should explore this potential relationship.

Results of mediation analysis help explain the relationship--*Supportive Attitudes related to MI* partially mediates the relationship between *Amount of MI Training* and *Use of MI*. This finding mirrors results of Nelson and Steele (2007), who found that negative attitudes toward treatment research partially mediate the relationship between practitioner training and self-reported EBP use. *Motivation to Use MI* also partially mediates the relationship between *Amount of MI Training* and *Use of MI*. The implication of this finding is that training alone, without attention to counselor attitudes and motivation levels, is not sufficient to encourage use of MI, but training does appear to increase one's readiness. This seems consistent with other research indicating that training alone does not result in effective practice (Fixsen et al., 2005; Luongo, 2007).

Prior research has shown the importance of attitudes in promoting use of evidence-based practices (Aarons & Sawitzky, 2006; Aarons & Palinkas, 2007; Nelson & Steele, 2007). This study's finding supports the notion that practitioner attitudes toward MI are important to their self-reported use of MI, but this study is among the first to empirically identify attitudes as the strongest contributor to the use of MI among multiple counselor characteristics.

This indication of the importance of attitudes in the use of MI suggests that similar factors may affect use of other EBPs. An important aspect of use of a practice is one's belief in it and positive attitudes toward it. This raises concerns about how the evidence-based practice process is conceptualized. Practitioners who are primarily

interested in using practices that they have some level of ownership and commitment to may have difficulty engaging in other practices based on scientific evidence, as the EBP framework prescribes. This finding may inform the way in which training programs for evidence-based practices should be designed. Corrigan et al. (2001) have reported how training can affect attitudes toward a practice. Recognizing that attitudes toward a practice play such an important role, trainings should incorporate modules that focus on improving respondents' attitudes toward a practice, such as by presenting information about its effectiveness for clients, and presenting its philosophy in a positive light. Trainings should also incorporate pre- and post-assessments of attitudes toward practices in which they are training to assess attitudes among participants.

There are several non-significant findings that offer questions for additional research. The first is a non-significant relationship between *MI Skill Level* and *Amount of MI Training*. (In this study, the lack of a relationship may be due to the low reported levels of training and skill in the sample.) There is the common assumption that attendance at motivational training workshops results in acquisition of skill in motivational interviewing. Although the literature offers examples of training evaluations where skill gains either did not occur, or occurred initially, they often do not persist at follow up (Baer et al., 2004; Miller, Yahne, & Moyers et al., 2004; Walters, 2005). Recognizing that skill development as a result of training is difficult to achieve, trainings of evidence-based practices should be sufficiently evaluated to conclude that they produce intended outcomes in counselor skill development. In a recent study evaluating training in the evidence-based practice process, Parrish (2008) showed post-training

increases (at three months) in several clinician outcomes: attitudes towards EBP, perceived feasibility of EBP, self-efficacy with regard to EBP, knowledge of EBP, and intentions to engage in EBP. Miller et al. (2004) believe that coaching and feedback are essential for solidifying skill in practice settings. More research is needed to ascertain the types of trainings that impart the most skill for various types of counselors.

Unlike other research examining how organizational context affects use of evidence-based practices, this study did not find that *Organizational Climate* is related to *MI Skill Level* or to *Use of MI. Organizational Climate* also does not mediate other implementation processes such as the relationship between *MI Skill Level* and *Use of MI* and *Amount of MI Training* and *Use of MI*.

5.3 Theoretical Implications

Study findings offer insight for future research on evidence-based practice and evidence-based practices implementation. Findings regarding three counselor characteristics (*Motivation to Use MI*, *MI Skill Level*, and *Supportive Attitudes related to MI*) suggest their importance in the implementation of motivational interviewing. By extension, motivation, skill level and supportive attitudes toward evidence-based practices deserve further study for their role in evidence-based practices implementation. Currently, evidence-based practice and evidence-based practices implementation models do not include practitioner motivation. Based on this study's findings that *Motivation to Use MI* plays such a strong role in a model of *Use of MI*, and that *Motivation to Use MI* mediates the relationship between *Amount of MI Training* and *Use of MI,* practitioner

motivation should be considered for further research. Figure 5.1 illustrates these

relationships:

Figure 5.1

Model of Relationships between Counselor Characteristics and Use of MI
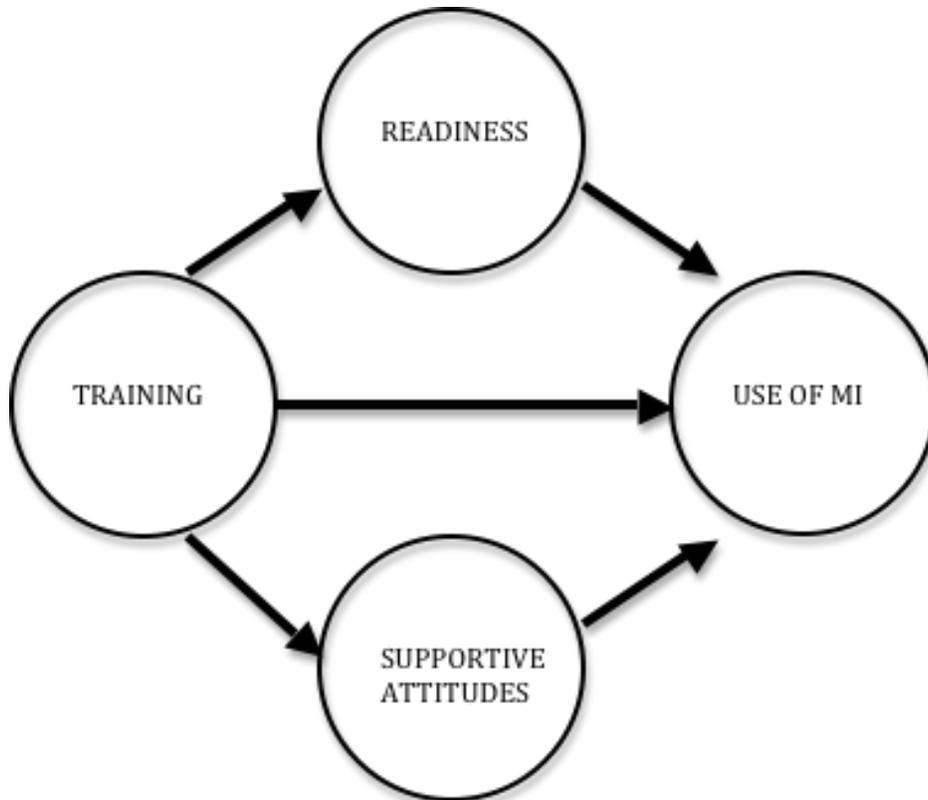
Skill level in an evidence-based practice is not an explicit component in current conceptual models. There is an implicit assumption that practitioners will use only practices in which they are competent. This variable was included in this study to explore how it may mediate implementation relationships. This study did not show that *MI Skill Level* is statistically related to *Use of MI* or that *MI Skill Level* acts as a mediator of relationships between *Amount of MI Training* and *Use of MI*, although this may be due to the low skill level present in this study's sample. These findings indicate that counselors' skill level in MI may not be influencing the level at which they report using motivational interviewing. This disconnect between competency in and use of a practice implies that counselors are over-estimating their abilities in MI. The fact that their *Motivation to Use MI* was strongly associated with their *Use of MI* further validates this conclusion. This finding calls for more attention to skill in models of evidence-based practices implementation. Currently, the five-step process does not address the need for assessment of skill prior to use of EBPs.

Many implementation models discussed earlier reference practitioner attitudes as an important factor in influencing use of new practices, but they do not explicitly define attitudes as a key factor. If this study's finding regarding the strong relationship between *Supportive Attitudes related to MI* and *Use of MI* is generalized to other evidence-based practices, evidence-based practice implementation models should consider inclusion of this important counselor characteristic. One finding in particular points to its important role in implementation – that *Supportive Attitudes related to MI* partially mediates the relationship between *Amount of MI Training* and *Use of MI*.

There are theoretical implications for the current evidence-based practice framework. The EBP process presumes that that practitioner use of interventions with best available evidence will lead to desirable and or intended outcomes, but it does not address the role of other mediating variables in the practice setting. Its premise is that the outcomes achieved in clinical trials with similar populations can be achieved through replication in practice settings. It does not account for organizational variables that affect adoption, such as staff attitudes toward an evidence-based practice, motivation or incentives to use new practices, or other workplace characteristics that affect personal job satisfaction and stress as they relate to service delivery.

5.4 Study Strengths and Limitations

Strengths

Prior studies of EBP implementation have focused on single characteristics such as the organizational context, or attitudes toward a practice or treatment research, as a predictor of EBP use (with the exception of Nelson & Steele, 2007). While this study provided empirical validation for the importance of attitudes toward a practice in the *Use of MI*, it also highlighted *Motivation to use MI* as strong contributor to *Use of MI*. More importantly, it tested a combination of factors generally assumed to contribute to use, including training, skill level, attitudes and organizational features to understand their relative contributions.

As mentioned, prior research on EBP implementation has focused on the importance of practitioner attitudes. This study's findings document the empirical nature of this relationship, both as a direct relationship and as a mediating one. By showing that

attitudes play a substantial role in practitioners' use of motivational interviewing, the study points to the needed direction of future research: in the area of strengthening practitioners' attitudes toward motivational interviewing in order to promote their use of the practice (while at the same time ensuring their competent use of the practice).

Limitations

This study possesses several limitations in its study design, study measures and aspects of the study sample that are outlined below. There are aspects of the study design that limit the generalizability of the study. Despite the fact that the original sample came from a larger study that used random selection to select participating clinics, for the purposes of this study, additional data collection was conducted to increase sample size in order to conduct specific data analysis methods. Although the study is cross-sectional, and the change over time in study measures is not part of the study purpose, the data used in the analysis comes from two different time points a year apart. The additional respondents in the second data collection come from the same clinics, but a year later. Ideally, data for a cross-sectional study would all come from the same point in time. In addition, as described earlier, a convenience sample of counselors were recruited in both data collection time points to complete a measure of MI skill. Because not all counselors from all clinics in the original sample were offered the opportunity to complete the measure, and because among those who were recruited, some declined, the sample of counselors for whom a skill measure was obtained is biased by these selection factors. The mean skill level in the sample is 18.3 indicating low proficiency as measured by the

VASE-R. Further, because the sample is comprised of counselors who volunteered to complete the measure, or who had the time to complete it, there is a strong selection bias.

The available power to detect effects in the analyses that include *MI Skill Level* was limited by missing data. Only 45 cases contained all necessary data for these analyses. Therefore, the power is reduced to .72 (assuming a medium effect size of .15 and using a significance level of .05, with 2 independent variables). As .72 is lower than the recommended .80 power, there is the risk of making a Type II error, or failing to reject a null hypothesis when it is not true. Future research examining the role of skill in implementation of MI should utilize larger samples.

Several measures used in the study could be better operationalized in future research. Specifically, the measures of training in MI, MI skill level, and use of MI, could be improved. Using *amount* of training in MI as a measure of training may not be sufficient to understand how receipt of training may affect use of MI. A better measure of training would include the specific training approach and the duration of the training received by a counselor as well as the level of coaching and follow up received. In this particular sample, 80% of counselors either received no MI training or a very low amount (less than 8 hours). More variance in this measure would have produced a more diverse sample. Future research exploring the impact of training on practice use among practitioners that may have received training in a variety of different formats should ensure that the sample has received training and include more than one variable to better describe the amount of motivational interviewing training received.

The measure of motivational interviewing skill level used in this study has limitations despite its research basis. In this study, skill level in MI was measured through use of the Video Assessment of Simulated Encounters-Revised (Rosengren, et al., 2005). While this is considered a valid and reliable measure of skill, the instrument was originally designed as a means for evaluating skill gains as part of a specific motivational interviewing training designed by the instrument's developers. As a result, the specific domains measured by the instrument may be most germaine to that specific training. Conceptually, though, motivational interviewing should be sufficiently defined that various trainings across the country should be imparting knowledge and skills regarding the same concepts and techniques, but this may not be the case in reality. Further, the instrument itself has limitations. To assess their skill level, practitioners are required to give timed responses in writing to video-based actors portraying clients. The instrument does not allow a real exchange between the counselors and clients. The only measure of skill is through evaluation of each of the counselors' responses, rather than evaluation of the way in which the client responds to the practitioners' responses. Although other measures of skill in motivational interviewing offer the ability to assess real encounters between counselors and clients, without resources to have counselors tape their interactions with clients and to code those interactions, the VASE-R's comparative strengths are its low-cost, and relatively short time to administer (about 45 minutes) and score (about 20 minutes).

The measure used to operationalize counselors' use of motivational interviewing with their clients is limiting for several reasons. First, because the measure relies on self-

138

report by counselors it is possible that individual counselors may interpret the concept of 'use' differently, especially among those who had not received MI training. Depending on the extent and quality of their training in MI, counselors may understand the methods and techniques involved in MI differently; thus, one counselors' use of MI may be different from another's depending on their abilities. Further, the extent of counselors' use may vary due to the wording of the question item. Reporting that they use MI with "about 50% of my clients" may imply that a counselor uses MI exclusively with these clients or sporadically. Thus, the dosage of the treatment used is not clearly measured. Another limitation of this measure, and of studying implementation of an evidence-based practice, is the way in which use of the practice was conceptualized in the question item. Practitioners were asked, "With what percent of your clients do you use MI?" The main problem with this way of asking about use is that it assumes that the practitioner correctly chose to use MI with the client based on an assessment of the client's problems that indicated that MI would be the most effective approach. There is the strong possibility that practitioners may report use of MI with clients when MI may not have been the most clinically appropriate treatment choice. This raises the concern of fidelity. For an EBP to achieve its intended outcome, it must be used (1) with sufficient competency; (2) with the population of clients for whom research has shown it to be effective; and (3) in its intended dosage and approaches. To ensure these criteria are met, more in-depth measures of use of EBPs are needed to fully evaluate their implementation.

An improvement in measuring counselors' reported use of motivational interviewing would be the use of on-site monitoring techniques such as review of case

notes and taping and review of clinical sessions in which MI is used. There are several

aspects of the dependent variable, *Use of MI*, that are limiting. First, the self-report nature

of the measure leaves room for interpretation by the practitioners as to what exactly

constitutes "use" and what exactly constitutes "motivational interviewing." For some

practitioners, "use" might imply use of the practice during one session with a client,

while for others it might mean use of the practice consistently throughout weeks-long

treatment. A more clearly worded question item could clarify the type of use being

referenced. Practitioners may have various understandings of what is meant by

motivational interviewing. For those who have little or no formal training and low to

moderate skill in the practice their understanding could be quite different than those who

have received significant training, and who are highly skilled. A better measure of 'use'

would be to analyze practitioners' case notes to document how MI is being used and to

what extent. Without access to case notes, future research might rely on a scale developed

to assess use of evidence-based practices by practitioners that includes items related to

practitioner competency, appropriateness for clients, and a checklist of essential elements

of the practice that are applied to ensure fidelity.

Finally, there are limitations in the study's analysis procedures due to violations

of normality and linearity assumptions of multiple regression. The main dependent

variable, *Use of MI*, is kurtotic. One independent variable, *Motivation to Use MI*, is

negatively skewed. Two pairs of variables do not exhibit linear relationships:

Organizational Climate and *MI Skill Level* and *Amount of MI Training* and *MI Skill

Level*. As noted in Chapter 4, although multiple regression is a robust procedure in the

face of these assumptions not being met (Hair, et al., 1995), caution should be taken regarding interpretations that are made from analysis results.

5.5 Recommendations for Practice

Based on the findings and implications discussed above, several practice recommendations are offered. First, training in MI must address skill gain and maintenance over time, and service programs must conduct regular evaluation of counselors' provision of MI. Programs should be held responsible for internal evaluations of practice, either at a program-level or at individual counselor level, by funders. Educational programs for professionals who use EBPs such as social work should address the importance of skill assessment prior to practice and practice evaluation during and after treatment. Further, although programs of social work may include course work in specific evidence-based practices, unless field sites offer supervision around students' use of EBPs, there may not be opportunity to assess and enhance student proficiency in the practices. This raises the larger problem regarding integration of classroom and field experiences in the promotion of EBP and EBPs that requires additional research.

Secondly, motivational interviewing training seminars and workshops and service programs should address counselors' attitudes toward MI as an essential element to promote use of the practice. This may involve training assessments of attitudes toward MI and program-level discussion and promotion of the practice at regular staff meetings.

Findings about the importance of attitudes in the use of MI point to the need to consider the best ways for the substance abuse field to treat clients. In the move toward use of evidence-based practices, practitioners are required to be either more eclectic in

141

their practice by using a variety of evidence-based practices, depending on the needs and diversity of their clients. Or, if this approach proves difficult, a model of referral as used in the medical profession should be employed. If a client seeks services from a practitioner who is not skilled in a practice that would be most effective for the client, the practitioner should be ready to refer the client to either an in-house practitioner with the desired skill set, or to another substance abuse center or residential facility that can effectively offer the treatment.

5.6 Recommendations for Future Research

The implications discussed above require further research. More empirical research is needed to refine current conceptual models of evidence-based practice and evidence-based practice implementation, which will in turn improve practice. Research is needed to better understand how to promote skill or competency in MI for *effective* use of MI. Research is needed to understand what constitutes "use" of MI. Do counselors use MI based on what they recall from training, or based on how a colleague suggests they use it, or based on practice guidelines and checklists? And, to what end? Are counselors conducting regular evaluations of their use of MI to ensure its compatibility with specific clients' needs? Do they assess clients for other EBPs from which they might benefit more, or do they apply MI as a one-size fits all approach? Do they ever refer clients when an assessment suggests another EBP other than MI?

More research is needed to explore important counselor characteristics influencing use of other specific evidence-based practices. Research should be conducted to establish whether a similar group of characteristics are important (as identified in

Rogers Diffusion of Innovation theory) or whether there are some specific counselor characteristics unique to individual EBPs.

Further, more research is needed to understand how the organizational environment supports or detracts from implementation of MI, and which specific aspects are most important, and how changes in the organization positively affect implementation of MI.

In addition to this study pointing to future research recommendations for understanding factors that contribute to practitioners' use of MI, it also suggests future research recommendations for understanding factors that contribute to use of other evidence-based practices. Certain assumptions can no longer be made about evidence-based practice implementation. For example, use of a practice is not a sufficient indication that clients are receiving effective services, unless a practitioners' skill level is related to their use of the practice.

Supportive attitudes related to MI proved to be the most important factor affecting its use. Research is needed in how to increase supportive attitudes for motivational interviewing during training sessions, or within practice environments. Often, there is the assumption among organizations (including state offices and locally-based clinics) that receipt of training will lead to effective, skillful use of evidence-based practices. Until trainings are deemed evidence-based through rigorous research, there is no guarantee that attendance at training will have the intended effect on practitioner skill attainment and practitioner behavior.

5.7 Recommendations for Evidence-based Practice Education in Social Work

Students' development of skill in specialized areas in (mental health, substance abuse, child welfare, etc.) should be a priority in social work education. In substance abuse concentrations in particular, general competencies are promoted such as interviewing and assessment, but students' development of specific practice skills has not been prioritized (Barsky & Coleman, 2001).

Students should be taught and assessed in evidence-based techniques in their practice concentrations. To increase the likelihood of clients benefiting from evidence-based practices, equal attention must be paid to clinician skill attainment in specific evidence-based practices, as is paid to students learning the five-step evidence-based practice process. Teaching of the evidence-based practice process should highlight the importance of skill assessment and skill maintenance as a part of their use of evidence-based practices.

As noted earlier, recent survey research of social work programs found that sixty-two percent of social work programs did not require both didactic *and* clinical supervision in any evidence-based therapy (Weissman et al., 2006), and that only 26 of 66 programs reported teaching specific ESI content, and of the 31 who endorsed teaching ESI content, very few required ESI training materials that would support teaching skills and techniques of the interventions (Woody, D'Souza, & Dartman, 2006).

Evidence-based practice has the potential to greatly improve the quality and outcomes of social work services. In order to realize this potential, though, more attention to skillfulness in evidence-based practices is needed. This will require shifts in thinking

about the current evidence-based practice process, and will require a great deal more

research on counselor and organizational characteristics that influence use of these

practices.

Appendix A: PPI Project Informed Consent

IRB Protocol # 2005-05-0018
Informed Consent to Participate in Research

The University of Texas at Austin

<u>Counselors and Program Directors:</u>
You are being asked to participate in a research study. This form provides you with information about the study. The Principal Investigator (the person in charge of this research) or his/her representative will provide you with a copy of this form to keep for your reference, and will also describe this study to you and answer all of your questions. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study: Texas Process and Practice Improvement Initiative (PPI)

Principal Investigator(s) (include faculty sponsor), UT affiliation, and Telephone Number(s): Stacey Stevens-Manser, PhD, University of Texas at Austin (512) 627-0253; Richard Spence, PhD, University of Texas at Austin (512)-232-0616; Laurel Mangrum, PhD, UT-Austin (512)-232-0616.

Funding source: National Institute on Drug Abuse, Texas Department of State Health Services

What is the purpose of this study? The purpose of the study is to test methods for improving substance abuse treatment processes and practices. Approximately 32 programs, 192 counselors, and 800 clients will be recruited to participate in the study.

What will be done if you take part in this research study? If you agree to participate in the study, you will be requested to complete several forms at the beginning and annually during the data collection phase of the study. This will include forms that will request information about your organization and yourself; methods that you use in your clinical practice; and your perspective of the therapeutic alliance you form with clients. These will take a total of approximately 40 minutes. In addition, you will be asked to help clients participate in the study by asking them to complete forms about themselves, their treatment, and their relationship with their counselor(s) once a week of every quarter (4 times during the year). Part of your role will be to explain and reinforce the voluntary nature of their participation in the study.

You may also be requested to participate in consultative workshops and in a team process with your colleagues to plan for and implement changes that could help improve the treatment processes and practices in the program. There will be one 4-hour workshop and a 2-hour follow-up work session. The amount of time you devote to the team activities will be, in part up to you and your team, and what change efforts you decide to undertake.

You may also be invited to participate in an interview and up to a maximum of two focus group sessions for the purpose of understanding data obtained in the study, learning about your experiences in the project, and improving the project interventions. You may also be asked to participate in an assessment that measures your clinical skill in motivational interviewing. Your participation in the assessment is voluntary.

What are the possible discomforts, risks and benefits? There may be some risks for your participation including some that are unknown at this time. It is possible you may feel uncomfortable receiving feedback that suggests the need to make changes in your practices in specific areas. Another risk is that the information collected from clients may reflect on your effectiveness as a clinician although that is not the study's purpose. It is the intent of this study to provide you and your program with feedback about your services and your clients in order enable you to focus on effective strategies for enhancing positive client outcomes. It is expected that this process will be of benefit to the clients you serve, and will improve your ability to enhance positive client outcomes.

If you choose to take part in this study, will it cost you anything? It will not cost you anything to take part in the study.

Will you receive compensation for your participation in this study? You will not receive compensation for participation.

If you do not want to take part in this study, what other options are available to you? Participation in this study is entirely voluntary. You are free to refuse to be in the study, and your refusal will not influence current or future relationships with The University of Texas at Austin or Texas Department of State Health Services.

How can you withdraw from this research study and who should I call if I have questions?
If you wish to stop your participation in this research study for any reason, you should contact your program administrator/director or: Stacey Stevens Manser at (512)-627-0253 or Richard Spence at (512) 2132-0616. You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

In addition, if you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Jody L. Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685 or the Office of Research Support and Compliance at (512) 471-8871 or email: orsc@uts.cc.utexas.edu.

How will your privacy and the confidentiality of your research records be protected? Information that you provide in this study will not be made available to your program administrator. The researchers will protect the confidentiality of your responses in research analyses and reports, and you will not be identified in any published studies that are issued from this project. If the results of this research are published or presented at scientific meetings, your identity will not be disclosed.

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. If the research project is sponsored then the sponsors also have the legal right to review your research records. Otherwise, your research records will not be released without your consent unless required by law or a court order.

The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with participation in any study.

Will the researchers benefit from your participation in this study? The researchers will not benefit from this study other than publishing the results and utilization of the findings.

Signatures:

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

_____ _ _
Printed name of person obtaining consent

_____ _
Signature of person obtaining consent   Date

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____
Printed Name of Subject

_____
Signature of Subject   Date

_____
Signature of Principal Investigator   Date

Appendix B: PPI Counselor Survey

Texas Process and Practice Improvement - Counselor Survey Group

1. Welcome and Informed Consent

Welcome and thank you for participating.

This survey asks about how you perceive your organization and how it functions.

It should take about 35 minutes at most to complete.

Please follow the instructions to provide your answers and click on the "next" button at the bottom of each page to continue.

It is necessary for you to read the following informed consent prior to completing this survey, and indicate your agreement to participate on the next page.

Informed Consent to Participate in Research The University of Texas at Austin

Counselors:
You are being asked to participate in a research study. This form provides you with information about the study. The Principal Investigator (the person in charge of this research) or his/her representative will provide you with a copy of this form to keep for your reference if you request it, or you may print it now if you wish. They are also available to describe this study to you and answer all of your questions if you choose to contact them. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study: Texas Process and Practice Improvement Initiative (PPI)

Principal Investigator(s): Stacey Stevens Manser, PhD, University of Texas at Austin (512) 627-0253; Richard Spence, PhD, University of Texas at Austin (512)-232-0616.

Funding source: National Institute on Drug Abuse, Texas Dept. of State Health Services

What is the purpose of this study? The purpose of the study is to test methods for improving substance abuse treatment processes and practices. Approximately 32 programs, 192 counselors, and 800 clients will be recruited to participate in the study.

What will be done if you take part in this research study? If you agree to participate in the study, you will be requested to complete several forms at the beginning and end of the data collection phase of the study. This will include forms that will request information about your organization and yourself; methods that you use in your clinical practice; and your perspective of the therapeutic alliance you form with clients. These will take a total of approximately 35 minutes. In addition, you will be asked to help clients participate in the study by asking them to complete forms about themselves, their treatment, and their relationship with their counselor(s) during one week of every quarter (4 times during the study year). Part of your role will be to explain and reinforce the voluntary nature of their participation in the study.

You may also be requested to participate in consultative workshops and in a team process with your colleagues to plan for and implement changes that could help improve the treatment processes and practices in the program. There will be one 4 hour workshop and a 2 hour follow-up work session. The amount of time you devote to the team activities will be, in part up to you and your team, and what change efforts you decide to undertake.

You may also be invited to participate in an interview and up to a maximum of two focus group sessions for the purpose of understanding data obtained in the study, learning about your experiences in the project, and improving the project interventions.

Page 1

2. Informed Consent (continued)

What are the possible discomforts, risks and benefits?
There may be some risks for your participation including some that are unknown at this time. It is possible you may feel uncomfortable receiving feedback that suggests the need to make changes in your practices in specific areas. Another risk is that the information collected from clients may reflect on your effectiveness as a clinician although that is not the study's purpose. It is the intent of this study to provide you and your program with feedback about your services and your clients in order enable you to focus on effective strategies for enhancing positive client outcomes. It is expected that this process will be of benefit to the clients you serve, and will improve your ability to enhance positive client outcomes.

If you choose to take part in this study, will it cost you anything? It will not cost you anything to take part in the study.

Will you receive compensation for your participation in this study? You will not receive compensation for participation.

If you do not want to take part in this study, what other options are available to you? Participation in this study is entirely voluntary. You are free to refuse to be in the study, and your refusal will not influence current or future relationships with The University of Texas at Austin or Texas Department of State Health Services.

How can you withdraw from this research study and who should I call if I have questions? If you wish to stop your participation in this research study for any reason, you should contact your program administrator/director or: Stacey Stevens Manser at (512) 627-0253 or Richard Spence at (512) 232-0616. You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

In addition, if you have questions about your rights as a research participant, or if you have complaints, concerns, or questions about the research, please contact Lisa Leiden, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, 512/232-4383. You may also contact the Office of Research Compliance and Support at 512/471-8871.

How will your privacy and the confidentiality of your research records be protected? Information that you provide in this study will not be made available to your program administrator. The researchers will protect the confidentiality of your responses in research analyses and reports, and you will not be identified in any published studies that are issued from this project. If the results of this research are published or presented at scientific meetings, your identity will not be disclosed.

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. If the research project is sponsored then the sponsors also have the legal right to review your research records. Otherwise, your research records will not be released without your consent unless required by law or a court order.

The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with participation in any study.

Will the researchers benefit from your participation in this study? The researchers will not benefit from this study other than publishing the results and utilization of the findings.

* 1. Based on the information in the preceding informed consent section, do you agree to participate in this study?

    ○ Yes   ○ No

Texas Process and Practice Improvement - Counselor Survey Group

3.

If you decide you would like to complete the survey at a later time, the link will be open until January 31, 2008.

2. What is the name of the outpatient clinic for which you work?

Texas Process and Practice Improvement - Counselor Survey Group

4. Background Information

Please type the requested information in the boxes or point and click on the circle that shows your answer to each item.

3. Today's date (mm/dd/yyyy):

[   ]

4. What is the name of the outpatient clinic for which you work?

[   ]

5. What is the zip code of your clinic location?

[   ]

6. What is your birth date (mm/dd/yyyy)?

[   ]

7. Are you:

○ Female   ○ Male

8. Are you Hispanic or Latino?

○ Yes   ○ No

9. Are you:

○ American Indian/Alaskan Native

○ Asian

○ Black or African-American

○ Native Hawaiian or Other Pacific Islander

○ White

○ More than one race

○ Other (please specify)

[   ]

152

10. Highest Degree Status:

○ No high school diploma or equivalent

○ High school diploma or equivalent

○ Some college, but no degree

○ Associate's degree

○ Bachelor's degree

○ Master's degree

○ Doctoral degree or equivalent

○ Other (medical assistant, RN, post-doctorate, etc)

5. Background Information

11. Discipline/Profession (mark all that apply):

☐ Addictions counseling

☐ Other counseling

☐ Education

☐ Vocational Rehabilitation

☐ Criminal Justice

☐ Psychology

☐ Social Work/Human Services

☐ Physician Assistant

☐ Medicine: Primary Care

☐ Medicine: Psychiatry

☐ Medicine: Other

☐ Nurse

☐ Nurse Practitioner

☐ Administration

☐ None, student

☐ Other (please specify)

[   ]

12. Certification Status in Addictions Field:

○ Not certified or licensed in addiction

○ Currently certified or licensed

○ Previously certified or licensed, but not now

○ Intern

13. Years you have worked (type in number response for each; if less than one year enter 0):

a. in the drug treatment field? [   ]

b. at this program or clinic? [   ]

c. in your current position? [   ]

14. How many clients are you currently treating (i.e. your caseload)?

○ 0   ○ 1 - 10   ○ 11 - 20   ○ 21 - 30   ○ 31 - 40   ○ > 40

154

15. How many days a week does this clinic location provide outpatient services?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

6. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

16. Your program needs additional guidance in –

	Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
assessing client needs.	○	○	○	○	○
matching needs with services.	○	○	○	○	○
increasing program participation by clients.	○	○	○	○	○
measuring client performance.	○	○	○	○	○
developing more effective group sessions.	○	○	○	○	○
raising the overall quality of counseling.	○	○	○	○	○
using client assessments to guide clinical and program decisions.	○	○	○	○	○
using client assessments to document program effectiveness.	○	○	○	○	○

17. You need more training for –

	Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
assessing client problems and needs.	○	○	○	○	○
increasing client participation in treatment.	○	○	○	○	○
monitoring client progress.	○	○	○	○	○
improving rapport with clients.	○	○	○	○	○
improving client thinking and problem solving skills.	○	○	○	○	○
improving behavioral management of clients.	○	○	○	○	○
improving cognitive focus of clients during group counseling.	○	○	○	○	○
using computerized assessments.	○	○	○	○	○
working with staff in other units or agencies.	○	○	○	○	○

18. Current pressures to make program changes come from –

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
clients in the program.	○	○	○	○	○
clinic staff members.	○	○	○	○	○
program supervisors or managers.	○	○	○	○	○
agency board members.	○	○	○	○	○
community action groups.	○	○	○	○	○
funding and oversight agencies.	○	○	○	○	○
accreditation or licensing authorities.	○	○	○	○	○
staff in other units or agencies.	○	○	○	○	○

Page 8

156

7. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

19. How strongly do you agree or disagree with each of the following statements?

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
You have enough opportunities to keep your counseling skills up-to-date.	○	○	○	○	○
There are enough counselors here to meet client needs.	○	○	○	○	○
Staff training and continuing education are priorities at this program.	○	○	○	○	○
This program holds regular inservice training.	○	○	○	○	○
This program encourages and supports professional growth.	○	○	○	○	○
A larger support staff is needed to help meet program needs.	○	○	○	○	○
Counselors here are able to spend enough time with clients.	○	○	○	○	○
You read about new techniques and treatment information each month.	○	○	○	○	○
You regularly read professional journal articles or books on drug abuse treatment.	○	○	○	○	○
You used the internet to access drug treatment information in the past month.	○	○	○	○	○
You used the Internet to communicate with other treatment professionals in the past month.	○	○	○	○	○
Support staff here have the skills they need to do their jobs.	○	○	○	○	○
You do a good job of regularly updating and improving your skills.	○	○	○	○	○
The budget here allows staff to attend professional conferences each year.	○	○	○	○	○
You learned new skills or techniques at a professional conference in the past year.	○	○	○	○	○
Frequent staff turnover is a problem for this program.	○	○	○	○	○
You have easy access for using the Internet at work.	○	○	○	○	○
Clinical staff here are well trained.	○	○	○	○	○
You have convenient access to e-mail at work.	○	○	○	○	○

8. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

20. How strongly do you agree or disagree with each of the following statements?

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
You are effective and confident doing your job.	○	○	○	○	○
Staff generally regard you as a valuable source of information.	○	○	○	○	○
You are viewed as a leader by other staff here.	○	○	○	○	○
You often influence the decisions of other staff here.	○	○	○	○	○
You are willing to try new ideas even if some staff members are reluctant.	○	○	○	○	○
You are sometimes too cautious or slow to make changes.	○	○	○	○	○
Learning and using new procedures are easy for you.	○	○	○	○	○
This program operates with clear goals and objectives.	○	○	○	○	○
You are able to adapt quickly when you have to shift focus.	○	○	○	○	○
Other staff often ask for your opinions about counseling and treatment issues.	○	○	○	○	○
You usually accomplish whatever you set your mind on.	○	○	○	○	○
You consistently plan ahead and carry out your plans.	○	○	○	○	○
You have the skills needed to conduct effective group counseling.	○	○	○	○	○
Management here has a clear plan for this program.	○	○	○	○	○
Program staff understand how this program fits as part of the treatment system in your community.	○	○	○	○	○
You have the skills needed to conduct effective individual counseling.	○	○	○	○	○
Your duties are clearly related to the goals of this program.	○	○	○	○	○
You frequently share your knowledge of counseling with other staff.	○	○	○	○	○
Other staff often ask your advice about program procedures.	○	○	○	○	○
Some staff get confused about the main goals for this program.	○	○	○	○	○

9. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

21. How strongly do you agree or disagree with each of the following statements?

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
Program staff are always kept well informed.	○	○	○	○	○
Staff members are given too many rules here.	○	○	○	○	○
Staff members always feel free to ask questions and express concerns in this program.	○	○	○	○	○
Staff members here often show signs of stress and strain.	○	○	○	○	○
Ideas and suggestions from staff get fair consideration by program management.	○	○	○	○	○
There is too much friction among staff members.	○	○	○	○	○
More open discussion about program issues are needed here.	○	○	○	○	○
The formal and informal communication channels here work very well.	○	○	○	○	○
Counselors here are given broad authority in treating their own clients.	○	○	○	○	○
Counselors here often try out different techniques to improve their effectiveness.	○	○	○	○	○
Staff frustration is common here.	○	○	○	○	○
You are under too many pressures to do your job effectively.	○	○	○	○	○
Management here fully trusts your professional judgement.	○	○	○	○	○
Everybody here does their fair share of work.	○	○	○	○	○
The staff here always work together as a team.	○	○	○	○	○
Staff here are always quick to help one another when needed.	○	○	○	○	○
Treatment planning decisions for clients here often have to be revised by a counselor supervisor.	○	○	○	○	○
The heavy workload here reduces program effectiveness.	○	○	○	○	○
Mutual trust and cooperation among staff in this program are strong.	○	○	○	○	○
Staff here all get along very well.	○	○	○	○	○

10. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

22. How strongly do you agree or disagree with the following statements?

	Disagree strongly	Disagree	Uncertain	Agree	Agree Strongly
Novel treatment ideas by staff are discouraged.	○	○	○	○	○
It is easy to change procedures here to meet new conditions.	○	○	○	○	○
You frequently hear good staff ideas for improving treatment.	○	○	○	○	○
The general attitude here is to use new and changing technology.	○	○	○	○	○
You are encouraged here to try new and different techniques.	○	○	○	○	○
You feel overwhelmed by paperwork.	○	○	○	○	○
You feel like you aren't making a difference.	○	○	○	○	○
You feel that it is a real effort to come into work.	○	○	○	○	○
You feel depressed.	○	○	○	○	○
You feel tired.	○	○	○	○	○
You feel disillusioned and resentful.	○	○	○	○	○
You feel that talking to clients is a waste of time.	○	○	○	○	○
You are satisfied with your present job.	○	○	○	○	○
You would like to find a job somewhere else.	○	○	○	○	○
You feel appreciated for the job you do.	○	○	○	○	○
You like the people you work with.	○	○	○	○	○
You give high value to the work you do here.	○	○	○	○	○
You are proud to tell others where you work.	○	○	○	○	○

160

Texas Process and Practice Improvement - Counselor Survey Group

11. Survey of Organizational Functioning

Please point and click on the circle that shows your answer to each item.

23. My program director:

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
Inspires others with her/his plans for this facility for the future.	○	○	○	○	○
Leads by example.	○	○	○	○	○
Gets people to work together for the same goal.	○	○	○	○	○
Insists on only the best performance.	○	○	○	○	○
Treats each of us as individuals with different needs, abilities, and aspirations.	○	○	○	○	○
Takes time to listen carefully to and discuss people's concerns.	○	○	○	○	○
Encourages new ways of looking at how we do our jobs.	○	○	○	○	○
Gives special recognition to others' work when it is very good.	○	○	○	○	○
Provides well-defined performance goals and objectives.	○	○	○	○	○
Emphasizes using new ideas, services, administrative techniques, etc., before most other programs do.	○	○	○	○	○

24. In the past year, you have -

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
Invited someone in to help you facilitate your sessions.	○	○	○	○	○
Had colleagues observe your sessions.	○	○	○	○	○
Received meaningful feedback on your performance from colleagues.	○	○	○	○	○
Visited other counselors' sessions.	○	○	○	○	○
Received useful suggestions for counseling materials from colleagues.	○	○	○	○	○

Please point and click on the circle that shows your answer to each item.

25. How strongly do you agree or disagree with the following statements?

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
Counselors at this program make a conscious effort to coordinate with other service professionals.	○	○	○	○	○
Most counselors at this program are cordial.	○	○	○	○	○
Counselors here design therapeutic interventions together.	○	○	○	○	○
The director, counselors, and staff collaborate to make this program run effectively.	○	○	○	○	○
Many counselors in this program set high standards for themselves.	○	○	○	○	○
Counselors support the director in enforcing program policies and rules.	○	○	○	○	○
Many counselors in this program feel responsible to help each other do their best.	○	○	○	○	○
Many counselors in this program help maintain discipline in the entire program, not just their sessions.	○	○	○	○	○
Many counselors in this program take responsibility for improving the program.	○	○	○	○	○
At this program, counselors work together to do what is "best for the clients."	○	○	○	○	○
When making important decisions, the program always focuses on what's best for client improvement.	○	○	○	○	○
Many counselors in this program feel responsible that all clients improve.	○	○	○	○	○
Our workday is organized to maximize counseling time.	○	○	○	○	○
This program sets high standards for client improvement.	○	○	○	○	○
This program has well-defined expectations for all clients.	○	○	○	○	○
In the past year, you have had frequent conversations with colleagues about the goals of this program.	○	○	○	○	○
In the past year, you have had frequent conversations with colleagues about what helps clients improve.	○	○	○	○	○
In the past year, you have had frequent conversations with colleagues about development of new curriculum.	○	○	○	○	○
Counselors in this program regularly discuss assumptions about counseling and behavior change.	○	○	○	○	○
Counselors talk about counseling in staff meetings, in the break room, etc.	○	○	○	○	○
A conscious effort is made by staff to make new counselors feel welcome here.	○	○	○	○	○
Experienced counselors invite new counselors into their sessions to observe, give feedback, etc.	○	○	○	○	○

13. Training Exposure and Utilization

Please point and click in the circle that shows your answer to each item.

26. How strongly do you agree or disagree with each of the following statements?

	Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
You were satisfied with the training offered at workshops available to you last year.	○	○	○	○	○
You were satisfied with the training opportunities available to you last year.	○	○	○	○	○

27. Training:

	None	1	2	3	4 or more
In the last year, how often did you attend training workshops held within 50 miles from your agency?	○	○	○	○	○
In the last year, how often did you attend training workshops more than 50 miles from your agency?	○	○	○	○	○
How many workshops do you expect to attend in the next 12 months?	○	○	○	○	○
In the last year, how many times did outside trainers come to your agency to give workshops?	○	○	○	○	○
In the last year, how many times did your agency offer special, in-house training?	○	○	○	○	○

28. Training:

	Never	Rarely	Sometimes	A lot	Almost Always
When you attend workshops, how often do you try out the new interventions or techniques learned?	○	○	○	○	○
Are your clients interested or responsive to new ideas or counseling materials when you try them?	○	○	○	○	○
In recent years, how often have you adopted (for regular use) new counseling interventions or techniques from a workshop?	○	○	○	○	○
When you have adopted new ideas into your counseling, how often have you encouraged other staff to try using them?	○	○	○	○	○
How often do new interventions or techniques that the staff from your program learn at workshops get adopted for general use?	○	○	○	○	○
How often do new ideas learned from workshops get discussed or presented at your staff meetings?	○	○	○	○	○
How often does management at your program recommend or support new ideas or techniques for use by all counselors?	○	○	○	○	○

Page 15

163

14. Working Alliance with Clients

29. These are ways you may feel or behave in relation to another person -- your clients. Consider your relationship overall with your clients, then point and click on the response that best shows your answer to each question.

	Seldom	Sometimes	Fairly often	Very often	Always
I establish with my clients a good understanding of what they are trying to accomplish in treatment.	○	○	○	○	○
My clients and I work toward mutually agreed upon goals.	○	○	○	○	○
My clients and I agree on what is important for them to work on.	○	○	○	○	○
My clients and I collaborate on setting goals for their therapy.	○	○	○	○	○
My clients and I agree on the steps that need to be taken to accomplish changes to their current situation.	○	○	○	○	○
Treatment provides my clients new ways to look at his/her problems.	○	○	○	○	○
As a result of treatment, my clients are clearer on how to change.	○	○	○	○	○
I believe that the way I work with my clients on their problems is correct.	○	○	○	○	○
I like my clients and believe my clients like me.	○	○	○	○	○
My clients and I respect each other.	○	○	○	○	○
My clients feel that I appreciate them as individual persons.	○	○	○	○	○
I care about my clients even when they do things that I do not approve of.	○	○	○	○	○

164

15. Motivational Interviewing

30. Please indicate the amount of Motivational Interviewing training you have received in the past year.

○ Never received MI training ○ Between 4 and 8 hours of MI training ○ 2 days ○ 3 days ○ 4 days ○ 5 days ○ More than 5 days of training

31. With what percent of your clients do you use Motivational Interviewing techniques?

○ None of my clients ○ About 25% of my clients ○ About 50% of my clients ○ About 75% of my clients ○ All of my clients

32. Please select the best response.

	Disagree strongly	Disagree	Uncertain	Agree	Agree strongly
I possess knowledge of Motivational Interviewing techniques.	○	○	○	○	○
I am confident using Motivational Interviewing techniques in my work.	○	○	○	○	○
I need more training on Motivational Interviewing before I can use it in my work.	○	○	○	○	○
I do not think there is enough evidence of Motivational Interviewing's clinical effectiveness to use it with my clients.	○	○	○	○	○
I think Motivational Interviewing is an effective treatment method.	○	○	○	○	○
I think the costs associated with using Motivational Interviewing are too high.	○	○	○	○	○
I think there are better treatment alternatives to Motivational Interviewing that I would rather use.	○	○	○	○	○
I think staff would be resistant to using Motivational Interviewing strategies.	○	○	○	○	○
I think Motivational Interviewing is inconsistent with the clinic's current treatment practices and/or philosophy.	○	○	○	○	○
Motivational interviewing is a clinical tool I plan to use with my clients.	○	○	○	○	○
Clients at this clinic have had Motivational Interviewing strategies included as part of their treatment.	○	○	○	○	○

165

33. Please select the best response.

	Disagree strongly	Disagree	Uncertain	Agree	Agree Strongly
I was encouraged to learn about Motivational Interviewing by my agency.	○	○	○	○	○
I sought information about Motivational Interviewing on my own initiative.	○	○	○	○	○
I have read research findings related to Motivational Interviewing.	○	○	○	○	○
Our staff has discussions about interventions that are evidence-based.	○	○	○	○	○
I have discussions with clients about the evidence-base of particular interventions.	○	○	○	○	○
I make time to read research on treatment interventions.	○	○	○	○	○
My agency is supportive of discussions about evidence-based interventions that may not be used in my agency.	○	○	○	○	○
I think that I understand most of the research that I read.	○	○	○	○	○

34. If you do have knowledge of motivational interviewing, where have you received it?

	Yes	No
Journals, newsletters, professional publications?	○	○
Participation in professional development such as courses or training workshops?	○	○
Membership in professional associations?	○	○

35. At the present time, how ready do you feel to use Motivational Interviewing techniques with your clients?

○ I'm not at all ready to use Motivational Interviewing techniques with my clients.

○ I'm thinking about using Motivational Interviewing techniques with my clients.

○ I'm planning to and making a commitment to use Motivational Interviewing techniques with my clients.

○ I'm actively working on using Motivational Interviewing techniques with my clients.

○ I've already been using Motivational Interviewing and will maintain its use with my clients.

36. Please answer the following items based on your experiences at your current workplace.

	Seldom	Sometimes	Fairly Often	Very Often	Always
I think my supervisor wants me to express my ideas.	○	○	○	○	○
I have the feeling that I can express my ideas freely.	○	○	○	○	○
I have the feeling that my suggestions for improvement are taken seriously.	○	○	○	○	○
In my opinion, my feedback, suggestions, or ideas contribute to a positive climate in this agency.	○	○	○	○	○
When I think of an idea that will benefit this organization I make a determined effort to implement it.	○	○	○	○	○
I sometimes discuss problems at work with my employer.	○	○	○	○	○
I have at least once contacted an outside source (i.e., union, agency, consultant) to get help in changing working conditions here.	○	○	○	○	○
I think I am able to disapprove freely within this agency.	○	○	○	○	○
I have the impression that my supervisor tries hard to implement my suggestions.	○	○	○	○	○
When things are seriously wrong and the organization won't act I am willing to "blow the whistle"	○	○	○	○	○
I have made several attempts to change working conditions here.	○	○	○	○	○

Texas Process and Practice Improvement - Counselor Survey Group

17. You have completed the survey!

Thank you for completing this survey. We appreciate your participation.

Aggregrate survey results will be shared with you in the near future.

18. Study Contact Information

If you have any questions about this survey, feel free to contact the study staff:

Elisa Borah: 512-232-0601; elisa_vinson@hotmail.com

Stacey Manser: 512-627-0253; stacey.manser@mail.utexas.edu

Appendix C:

Video Assessment of Simulated Encounters – Revised (VASE-R) Answer Sheet

(Cover page modified for Process and Practice Improvement Study)

Please complete the following demographic information.

Clinic Name	
What is the zip code of your clinic location?	
What is your birth date (mm/dd/yyyy)?	
Ethnicity	___American Indian/Alaskan Native ___Asian ___Black or African American ___Native Hawaiian or Other Pacific Islander ___White ___More than one race ___Other (specify) _____
Highest Degree	___No high school degree or equivalent ___High school diploma or equivalent ___Some college, but no degree ___Associate's degree ___Bachelor's degree ___Master's degree ___Doctoral degree or equivalent ___Other (medical assistant, RN, post-doctorate, etc.)
Gender	___Male ___Female
Prior MI Training (check one)	___Never received MI training ___ 4-8 hours of MI training ___2 days of MI training ___3 days of MI training ___4 days of MI training ___5 days of MI training ___more than 5 days of MI training

Sample Items

Sample A. *Write a response that indicates you are listening.*

Sample B. *Write a response that you think would be most helpful in this situation.*

VASE-R Answer Sheet

Response 1. *Write a response that indicates you are listening.*

Response 2. *Write a response that indicates you are listening.*

VASE-R Answer Sheet

Response 3. *Write a response that you think would be most helpful in this situation.*

Response 4. *Write a summary that you might say to Lisa and which touches on the things that you think are most important.*

VASE-R Answer Sheet

173

Response 5. *Write what you would say to Lisa that might elicit from her statements that support making healthy changes (e.g., concerns and/or recognition of problems, intention and/or optimism about prospective changes).*

Response 6. *There are many different directions to explore with Lisa. Select the question or statement that you think would be most helpful to explore with Lisa now, if you wanted to increase her motivation to change; then indicate why you chose that one in the space below.*

_____ (1) What was your drinking like on the evening of the DUI?

_____ (2) You indicated that being here is not a high priority for you. What would you rather be doing?

_____ (3) You said, "something ain't right" about your situation. Tell me more about that.

_____ (4) Tell me about your drinking patterns. How often and much do you drink?

_____ (5) So what does an alcoholic look like to you?

What reason(s) led you to choose this item?

VASE-R Answer Sheet

Response 7. Write a response that indicates you are listening.

Response 8. *Write a response that you think would be most helpful in this situation.*

VASE-R Answer Sheet

Response 9. Write a response that indicates you are listening.

Response 10. *Write a summary that you might say to Ulysses and which touches on the things that you think are most important.*

VASE-R Answer Sheet

Response 11. *Write a response that you think would be helpful in eliciting from Ulysses statements that support his making healthy changes in his pattern of substance use (e.g., concerns and/or recognition of substance-related problems, intention and/or optimism about prospective substance-related changes).*

Response 12. *Choose the statement or question that you think might be most helpful to explore with Ulysses, if you wanted to increase his motivation to change; then indicate why you chose that one in the space below.*

_____ (1) You mentioned that being homeless is bad for your health and puts you at-risk for legal difficulties. If so, why not give treatment a chance?

_____ (2) Don't you think your housing situation might improve if you stopped your drug use?

_____ (3) So, even though all these tough things happened because of your drug use, you're still not sure you need treatment?

_____ (4) What were things like when you were clean?

_____ (5) What sorts of experiences have you had with treatment?

What reason(s) led you to choose this item?

VASE-R Answer Sheet

Response 13. *Write a response that you think would be most helpful in this situation.*

Response 14. Write a response that you think would be most helpful in this situation.

Response 15. Write a response that you think would be most helpful in this situation.

Response 16. *Write a summary that you might say to Bailey and which touches on the things that you think are most important.*

VASE-R Answer Sheeet

Response 17. *Write a response that you think would be helpful in eliciting from Bailey statements that support her making healthy changes in her pattern of substance use (e.g., concerns and/or recognition of substance-related problems, intention and/or optimism about prospective substance-related changes).*

Response 18. *Choose the question or statement that you think might be most helpful to explore with Bailey, if you wanted to increase her motivation to change; then indicate why you chose that one in the space below.*

_____ (1) What relationship do you see between your drug use and your dropping
                grades?
_____ (2) Your parents don't believe you and that bothers you. What upsets you
                about that?
_____ (3) So, how often and what sorts of drugs are you using?
_____ (4) Your situation does sound hard and would probably be easier if you were
                off the weed for awhile. What do you think?
_____ (5) You said your parents would worry if they knew what was really going on.
Bailey, can't you see that they're already worried and that's why they brought you
here?

What reason(s) led you to choose this item?

VASE-R Answer Sheet

References

Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The evidence-based practice attitude scale (EBPAS). *Mental Health Services Research, 6*(2), 61-74.

Aarons, G. A. & Palinkas, L. A. (2007). Implementation of evidence-based practice in child welfare: Service provider perspectives. *Administration and Policy in Mental Health and Mental Health Services Research,* 34(4), 411-419.

Aarons, G. A. & Sawitzky, A.C. (2006). Organizational culture and climate and mental health provider attitudes toward evidence-based practice. *Psychological Services*, *3*(1), 61-72.

Addiction Technology Transfer Centers. (2000). *The Change Book: A blueprint for technology transfer*. Addiction Technology Transfer Center National Office, Kansas City, MO.

Addis, M. E. (2002). Methods for disseminating research products and increasing evidence-based practice: Promises, obstacles, and future directions. *Clinical Psychology: Science and Practice, 9*(4), 367-378.

Addis, M.E., Wade, W.A., Hatgis, C. (1999). Barriers to dissemination of evidence-based practices: Addressing practitioners' concerns about manual-based psychotherapies. *Clinical Psychology: Science and Practice, 6,* 430-431.

Aiken, L. S. & West, S. G. (1991). Multiple regression: testing and interpreting interactions. Sage Publications. Thousand Oaks, CA.

Amodeo, M., Ellis, M. A., & Samet, J. H. (2006). Introducing evidence-based practices

into substance abuse treatment using organization development methods. *American Journal of Drug and Alcohol Abuse*, 32(4), 555–560.

Babbie, E. (2002). *The basics of social research* (2nd ed.), Belmont, CA: Wadsworth/Thomson Learning.

Baer, J. S., Rosengren, D. B., Dunn, C. W., Wells, E. A., Ogle, R. L., & Hartzler, B. (2004). An evaluation of workshop training in motivational interviewing for addiction and mental health clinicians. *Drug and Alcohol Dependence, 73*(1), 99-106.

Baer, J. S., Wells, E. A., Rosengren, D. B., Hartzler, B., Beadnell, B., & Dunn, C. W. (2009). Agency context and tailored training in technology transfer: A pilot evaluation of motivational interviewing training for community counselors. *Journal of Substance Abuse Treatment*. In press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Barratt, M. (2003). Organizational support for evidence-based practice within child and family social work: a collaborative study. *Child & Family Social Work, 8*(2), 143-150.

Barsky, A. & Coleman, H. (2001). Evaluating skill acquisition in motivational interviewing: The development of an instrument to measure practice skills. *Journal of Drug Education*, 31 (1), 69-82.

Biegel, D. E., Kola, L. A., Ronis, R. J., Boyle, P. E., Delos Reyes, C. M., Wieder, B., et al. (2003). The Ohio Substance Abuse and Mental Illness Coordinating Center of Excellence: Implementation support for evidence-based practice. *Research on Social Work Practice, 13*(4), 531-545.

Bina, R., Harnek Hall, D. M., Mollette, A., Smith-Osborne, A., Yum, J., Sowbel, L., & Jani, J. (2008). Substance abuse training and perceived knowledge: Predictors of perceived preparedness to work in substance abuse. *Journal of Social Work Education, 44*(3), 7-35.

Broome, K. M., Flynn, P. M., Knight, D. K., &Simpson, D. D. (2007). Program structure, staff perceptions, and client engagement in treatment. *Journal of Substance Abuse Treatment, 33*(2), 149–158.

Carroll, K. M., & Rounsaville, B. J. (2003). Bridging the gap: A hybrid model to link efficacy and effectiveness research in substance abuse treatment. *Psychiatric Services, 54*, 333-339.

Carroll, K. M., Ball, S. A., Nich, C. et al. (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. *Drug and Alcohol Dependence*, 81(3), 301-312.

Carroll, K. M., Connors, G. J., Cooney, N. L., Diclemente, C. C., Donovan, D. M., et al. (1998). Internal validity of Project MATCH treatments: Discriminability and integrity. *Journal of Consulting and Clinical Psychology*, 66(2), 290-303.

Chaffin, M. (2006). Organizational culture and practice epistemologies. *Clinical*

Psychology: Science and Practice, 13(1), 90-93.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159.

Council on Social Work Education. (2008). Educational Policy and Accreditation

Standards. Accessed from http://www.cswe.org/CSWE/accreditation on January 5,

2009.

Dunn, C. Deroo, L., Rivara, F. (2001). The use of brief interventions adapted from

motivational interviewing across behavioral domains: a systematic review.

Addiction, 96(12), 1725-1742.

Faulkner, M. & Borah, E. V. (2008). Influence of workplace features on child welfare

service quality. *Professional Development: The International Journal of*

Continuing Social Work Education, 11(3), 36-49.

Fixsen, D.L., Blase, K. A., Naoom, S. F., Wallace, F. (2007). Lessons learned from

research on implementation. National Implementation Research Network, Louis

de la Parte Florida Mental Health Institute. Retrieved from

www.nwrel.org/nwrcc/images/rti2007/fixsen1.pdf on February 19, 2009.

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallas, F. (2005).

Implementation Research: A Synthesis of the Literature. (Financed by the William

T. Grant Foundation No. FMHI Publication #231). Tampa, FL: University of

South Florida, Louis de la Parte Florida Mental Health Institute, The National

Implementation Research Network.

Franklin, C. (2007). Teaching evidence-based practices: Strategies for implementation: A Response to Mullen et al. and Proctor. *Research on Social Work Practice, 17*, 592-602.

Franklin, C. & Hopson, L. (2007). Facilitating the use of evidence-based practice in community organizations. *Journal of Social Work Education*, 43(3), 377-404.

Gambrill, E. (1999). Evidence-based practice: An alternative to authority-based practice. *Families in Society, 80*(4), 341-350.

Gibbs, L. (2003). *Evidence-based practice for the helping professions: A practical guide with integrated multimedia.* Pacific Grove, CA: Brooks/Cole-Thompson Learning.

Gibbs, L., & Gambrill, E. (2002). Evidence-based practice: Counterarguments to objections. *Research on Social Work Practice, 12*(3), 452-476.

Gilgun, J. F. (2005). The four cornerstones of evidence-based practice in social work. *Research on Social Work Practice, 15*(1), 52-61.

Gioia, D. (2007). Using an organizational change model to qualitatively understand practitioner adoption of evidence-based practice in community mental health. *Best Practices in Mental Health, 3*(1), 1-15.

Gira, E. C., Kessler, M. L., & Poertner, J. (2004). Influencing social workers to use research evidence in practice: Lessons from Medicine and the Allied Health professions. *Research on Social Work Practice, 14*(2), 68-79.

Glisson, C. (2007). Assessing and changing organizational culture and climate for effective services. *Research on Social Work Practice, 17*(6), 736-747.

Glisson, C. L. & Hemmelgarn, A.L. (1998). The effects of organizational climate and

    interorganizational coordination on the quality and outcomes of children's service

    systems. *Child Abuse & Neglect, 22,* 401-421.

Glisson, C. & Schoenwald, S. K. (2005). The ARC organizational and community

    intervention strategy for implementing evidence-based children's

    mental health treatments. *Mental Health Services Research, 7*(4), 243-259.

Hartzler, B., Baer, J. S., Dunn, C., Rosengren, D. B. Wells, E. (2007). What is seen

    through the looking glass: The impact of training on practitioner self-rating of

    motivational interviewing skills. *Behavioural and Cognitive Psychotherapy*,

    35(4), 431-445.

Haynes, R. B., Devereaux, P. J., & Guyatt, G. H. (2002). Clincal expertise in the era of

    evidence-based medicine and patient choice. *Evidence Based Medicine, 7*, 36-38.

Hemmelgarn, A. L., Glisson, C., & James, L. R. (2006). Organizational culture and

    climate: implications for services and interventions research. *Clinical Psychology:*

    Science and Practice, 13(1), 73-89.

Horvath, A. O. & Greenberg, L. S. (1986). The development of the working alliance

    inventory. In: L.S. Greenberg and W.M. Pinsof, Editors, *The psychotherapeutic*

    process: A research handbook, Guilford, New York, NY, 529–556.

Howard, M. O., Allen-Meares, P., & Ruffolo, M. C. (2007). Teaching evidence-based

    practice: Strategic and pedagogical recommendations for schools of social work.

    Research on Social Work Practice, *17* (5), 561-568.

Howard, M. O., McMillen, C. J., & Pollio, D. E. (2003). Teaching evidence-based practice: Toward a new paradigm for social work education. *Research on Social Work Practice, 13*(2), 234-259.

Ilgen, M. A., McKellar, J., Moos, R., & Finney, J. W. (2006). Therapeutic alliance and the relationship between motivation and treatment outcomes in patients with alcohol use disorder. *Journal of Substance Abuse Treatment, 31*(2), 157-162.

Joe, G. W., Broome, K. M., Simpson, D. D., & Rowan-Szal, G. A. (2007). Counselor perceptions of organizational factors and innovations training experiences. *Journal of Substance Abuse Treatment, 33*(2), 171-182.

Johnson, M. & Austin, M. J. (2006). Evidence-based practice in the social services: Implications of organizational change. *Administration in Social Work, 30*(3), 75-104.

Kayser, K., Walker, D., & Demaio, J. (2000). Understanding social workers' sense of competence within the context of organizational change. *Administration in Social Work, 24*(4), 1-20.

Kitson, A, Harvey, G., McCormack, B. (1998). Enabling the implementation of evidence-based practice: a conceptual framework. *Quality in Health Care*, *7*, 149-158.

Lambert, M. (2004). *Bergin and Garfield's Handbook of Psychotherapy and Behavior Change*. New York: John Wiley & Sons Inc.

Lehman, W. E., Greener, J. M., & Simpson, D. D. (2002). Assessing organizational readiness for change. *Journal of Substance Abuse Treatment 22*(4), 197-209.

Luongo, G. (2007). Re-thinking child welfare training models to achieve evidence-based practices. *Administration in Social Work, 31* (2), 87-96.

Madson, M. B., & Campbell, T. C. (2006). Measures of fidelity in motivational enhancement: A systematic review. *Journal of Substance Abuse Treatment, 31*(1), 67-73.

McGovern, M.P., Thomas, T.S., Xie, H., Drake, R.E. (2004). A survey of clinical practices and readiness to adopt evidence-based practices: Dissemination research in an addiction treatment system. *Journal of Substance Abuse Treatment, 26*(4), 305-312.

McHugo, G. J., Drake, R. E., Whitley, R., Bond, G. R., Campbell, K., Rapp, C. A., Goldman, H. H., Lutz, W. J., & Finnerty, M. T. (2007). Fidelity outcomes in the National Implementing Evidence-based Practices Project. *Psychiatric Services, 58*(10), 1279-1284.

Miller, W. R., & Rollnick, S. (2002). *Motivational Interviewing: Preparing People for Change*. New York: Guilford Press.

Miller, W.R., Sorensen, J.L., Selzer, J.A., Brigham, G.S. (2006). Disseminating evidence-based practices in substance abuse treatment: A review with suggestions. *Journal of Substance Abuse Treatment, 31,* 25-39.

Miller, W.R., Yahne, C.E., Moyers, T.B., Martinez, J. & Pirritano, M. (2004). A randomized trial of methods to help clinicians learn motivational interviewing. *Journal of Consulting and Clinical Psychology, 72*(6), 1050–1062.

Miller, W. R., Yahne, C. E., & Tonigan, J. S. (2003). Motivational interviewing in drug abuse services: a randomized trial. *Journal of Consulting Clinical Psychology, 71*(4), 754-763.

Mullen, E. J. (2004). Facilitating practitioner use of evidence-based practice. In A. R. Roberts & K. R. Yeager (Eds.), *Evidence-Based Practice Manual: Research and Outcome Measures in Health and Human Services* (pp. 205-210). New York: Oxford.

Mullen, E. J. (2006). Facilitating practitioner use of evidence-based practice. In A. R. Roberts & K. R. Yeager (Eds.), *Foundations of evidence-based social work practice* (pp. 152-159). New York: Oxford University Press.

Mullen, E. J., & Bacon, W. (2004). Implementation of practice guidelines and evidence-based treatment. In A. R. Roberts & K. R. Yeager (Eds.), *Evidence-Based Practice Manual: Research and Outcome Measures in Health and Human Services.* (pp. 210-218). New York: Oxford.

Mullen, E. J., Bellamy, J. L., Bledsoe, S. E. & Francois, J. J. (2006). Teaching evidence-based practice. Paper presented at the Improving the Teaching of Evidence-based Practice Symposium, October 16-18, 2006.

Mullen, E. J., Bledsoe, S. E., & Bellamy, J. L. (2008). Implementing evidence-based social work practice. *Research on Social Work Practice, 18(4)*, 325-338.

Mullen, E. J., Shlonsky, A., Bledsoe, S. E., & Bellamy, J. L. (2005). From concept to implementation: challenges facing evidence-based social work. *Evidence & Policy: A Journal of Research, Debate and Practice, 1*(1), 61-84.

Mullins, S. M., Suarez, M., Ondersma, S. J., & Page, M. C. (2004). The impact of
motivational interviewing on substance abuse treatment retention: A randomized
controlled trial of women involved with child welfare. *Journal of Substance
Abuse Treatment, 27*(1), 51-58.

Najavits, L. M., Crits-Christoph, P., & Diererger, A. (2000). Clinicians' impact on the
quality of substance abuse disorder treatment. *Substance Use & Misuse, 35*(12-
14), 2161-2190.

National Association of Social Workers. (2009). *Code of Ethics*. Retrieved February 16,
2009 from http://www.socialworkers.org/pubs/code/code.asp.

Nelson, T. D. & Steele, R. G., (2007). Predictors of practitioner self-reported use of
evidence-based practices: Practitioner training, clinical setting, and attitudes
toward research. *Administration and Policy in Mental Health and Mental Health
Services Research, 34*(4), 319-330.

Nelson, T. D., Steele, R. G., & Mize, J. A. (2006). Practitioner attitudes toward evidence-
based practice: Themes and challenges. *Administration and Policy in Mental
Health Services Research, 33*, 398-409.

Orwin, R. G. (2000). Assessing program fidelity in substance abuse health services
research. *Addiction, 95*(11), Supplement 3, 309-327.

Parrish, D. (2008). Evaluation of the impact of a full-day continuing education training
on how practitioners learn about, view, and engage in evidence-based practice.
Dissertation Abstracts International, UMI No. AAT 3341945.

Polcin, D. L., Galloway, G. P., Palmer, J., & Mains, W. (2004). The case for high-dose motivational enhancement therapy. *Substance Use & Misuse, 39*(2), 331-343.

Pollio, D. E. (2006). The art of evidence-based practice. *Research on Social Work Practice, 16*(2), 224.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*(4), 717-731.

Preacher, K. J., (2003). *Calculation for the Sobel Test: An interactive calculation tool for mediation tests.* Retrieved from http://people.ku.edu/~preacher /sobel/sobel.htm.

Prochaska, J. O., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing traditional boundaries of change*. Homewood, IL: Dorsey Press.

Proctor, E. (2004). Leverage points for the implementation of evidence-based practice. *Brief Treatment and Crisis Intervention, 4*, 227-242.

Proctor, E. (2007). Implementing evidence-based practice in social work education: Principles, strategies, and partnerships. *Research on Social Work Practice, 17*, 583-591.

Proctor, E. K. & Rosen, A. (2008). From knowledge production to implementation: Research challenges and imperatives. *Research on Social Work Practice, 18*(4), 285-291.

Regehr, C., Stern, S., & Shlonsky, A. (2007). Operationalizing evidence-based practice: The development of an institute for evidence-based social work. *Research on Social Work Practice, 17*(3), 408-416.

Rogers, E. M. (2003). *Diffusion of Innovations*, 5th edition. New York: Free Press.

Roman, P.M. (1988). Growth and transformation in workplace alcoholism programming in: M. Galanter, ed. *Recent Developments in Alcoholism.* Vol. 6, New York: Plenum Press, 1988, pp. 131- 158.

Rosen, A. (2003). Evidence-based social work practice: Challenges and promise. *Social Work Research, 27*(4), 197-208.

Rosengren, D. B., Baer, J. S., Hartzler, B. Dunn, C. W., & Wells, E. A. (2005). The video assessment of simulated encounters (VASE): Development and validation of a group-administered method for evaluating clinician skills in motivational interviewing. *Drug and Alcohol Dependence, 79*(3), 321-330.

Rubak, S., Sandbæk, A., Lauritzen, T., Borch-Johnsen, Knut, & Christensen, B. (2006). An education and training course in motivational interviewing influence: GPs' professional behavior. *British Journal of General Practice, 56*, 429-436.

Rubak, S., Sandbæk, A., Lauritzen, T., & Christensen, B. (2005). Motivational interviewing: a systematic review and meta-analysis. *British Journal of General Practice, 55*(513), 305-312.

Rubel, E., Shepell, W., Sobell, L., and Miller, W. (2000). Do continuing education workshops improve participants' skills? Effects of a motivational interviewing

workshop on substance-abuse counselor's skills and knowledge. *Behavior Therapy, 23*(4), 73–77.

Rubin, A. (2008). *Practitioner's Guide to Using Research for Evidence-Based Practice*. New Jersey: John Wiley & Sons, Inc.

Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't. *British Medical Journal, 312*(7023), 71-72.

Sackett, D. L., Straus, S. E., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (2000). *Evidence-based medicine: How to practice and teach EBM* (2nd ed.). Edinburg, UK: Churchill Livingston.

Saldana, L., Chapman, J. E., Henggeler, S. W., Rowland, M. D. (2008). Organizational readiness for change in adolescent programs: Criterion validity. *Journal of Substance Abuse Treatment, 33*(2), 159-169.

Schoener, E. P., Madeja, C. L., Henderson, M. J., Ondersma, S. J., Janisse, J. J. (2006). Effects of motivational interviewing training on mental health therapist behavior. *Drug and Alcohol Dependence*, 82, 269-275.

Schoenwald, S. K., Henggeler, S. W., Brondino, M. J., & Rowland, M. D. (2000). Multisystemic therapy: Monitoring treatment fidelity. *Family Process, 39*(1), 83-103.

Schoenwald, S. K. & Hoagwood, K. (2001). Effectiveness, transportability, and dissemination of interventions: What matters when? *Psychiatric Services, 52*(9), 1190-1197.

Schoenwald, S. K., Sheidow, A. J., & Letourneau, E. J. (2004). Toward effective quality

assurance in evidence-based practice: Links between expert consultation, therapist

fidelity, and child outcomes. *Journal of Clinical Child and Adolescent*

Psychology, 33(1), 94-104.

Shlonsky, A., & Gibbs, L. (2004). Will the real evidence-based practice please stand up?

Teaching the process of evidence-based practice to the helping professions. *Brief*

Treatment and Crisis Intervention, 4(2), 137-153.

Shlonsky, A., & Stern, S. B. (2007). Reflections on the teaching of evidence-based

practice. *Research on Social Work Practice*, 17(5), 603-611.

Simpson, D. D. (2002). A conceptual framework for transferring research to practice.

Journal of Substance Abuse Treatment, 22(4), 171-182.

Simpson, D. D. (2007). Organizational readiness for stage-based

dynamics of innovation implementation. *Invited paper presented at the*

Stockholm Conference on Implementation & Translational Research. IMS/Swedish

National Institute of Public Health. Stockholm (October 15-16, 2007).

Simpson, D. D. & Flynn, P. M. (2007). Moving innovations into treatment: A stage-based

approach to program change. *Journal of Substance Abuse Treatment, 33*(2), 111-

120.

Simpson, D. D. (2002). A conceptual framework for transferring research to practice.

Journal of Substance Abuse Treatment, 22(4), 171-182.

Springer, D. (2007). The teaching of evidence-based practice in social work higher

education—Living by the Charlie Parker dictum: A response to papers by

Shlonsky and Stern, and Soydan. *Research on Social Work Practice, 17*(5), 619-624.

Squires, D.D., Gumbley, S.J., Storti, S.A. (2008). Training substance abuse treatment organizations to adopt evidence-based practices: The Addiction Technology Transfer Center of New England Science to Service Laboratory. *Journal of Substance Abuse Treatment, 34(*3), 293-301.

Steib, S. (2004). Whatever the problem, the answer is "evidence-based practice"—Or is it? *Child Welfare*, 83 (6), 611-615.

Thyer, B. A. (2006). Evidence-based macro practice: Addressing the challenges and opportunities for social work education. Paper presented at the Improving the Teaching of Evidence-based Practice Symposium, October 16-18, 2006.

Thyer, B. A. (2002). Evidence-based practice and clinical social work. *British Medical Journal, 5*(1), 7-23.

Thyer, B. A. (2004). What is evidence-based practice? *Brief Treatment and Crisis Intervention, 4*(2), 167-176.

U.S. Department of Health and Human Services. (2006). *The road ahead: Research partnerships to transform services*. A report by the National Advisory Mental Health Council's Workgroup on Services and Clinical Epidemiology Research. Bethesda, MD: National Institutes of Health, National Institute of Mental Health.

Velasquez, M. M., Maurer, G. G., Crouch, C. & DiClemente, C. C. (2001). *Group Treatment for Substance Abuse: A Stages-of-change Therapy Manual*. New York: Guilford Press.

Velasquez, M. M., von Sternberg, K., Dodrill, C., Kan., Y., & Parsons, J. (2005). The

transtheoretical model as a framework for developing substance abuse

interventions. *Journal of Addictions Nursing*, 16 (1-2), 31-40.

Weissman, M. M., Verdeli, H., Gameroff, M. J. et al. (2006). National survey of

psychotherapy training in psychiatry, psychology, and social work. *Archives of*

General Psychiatry, 63(8), 925-934.

Woody, J. D., D'Souza, H. J., & Dartman, J. (2006). Do Master's in social work

programs teach empirically supported interventions? A survey of deans and

directors. *Research on Social Work Practice, 16,* 469-479.

Yoo, J. (2002). The relationship between organizational variables and client outcomes: A

case study in child welfare. *Administration in Social Work, 26*(2), 39-61.

Vita

Elisa Vinson Borah attended Duncan High School in Duncan, Oklahoma. In 1991 she began her B.A. in anthropology at Washington University in St. Louis, Missouri. She completed her B.A. in anthropology and minor in humanities in 1995. She spent one year working at the Literacy Council of St. Louis before beginning her Master's in Social Work (M.S.W.) at the George Warren Brown School of Social Work at Washington University in 1996. She completed her M.S.W. in 1998 with a social and economic development concentration. She completed her final field practicum at the Urban Institute in 1998 and continued working there as a Research Associate until 2001. From 2001-2005, she worked at the University of Hawaii School of Social Work, as a researcher with a State of Hawaii Mental Health training grant and as a research methods course instructor. In August 2005, she began her doctoral degree at the School of Social Work at the University of Texas at Austin. During her time in the program she worked as a research assistant for two years at the NIDA-funded Addiction Research Institute and worked for one year as a Project Coordinator for a NIAAA-funded research study examining the effectiveness of brief motivational interventions in hospital trauma settings.

Permanent Address: 604 Highland Springs Lane, Georgetown, Texas 78633

The dissertation was typed by the author.