REHABILITATION COUNSELOR SELF-EFFICACY AND WORK ENVIRONMENT FACTORS THAT PROMOTE THE USE OF EVIDENCE-BASED PRACTICES IN VOCATIONAL REHABILITATION SERVICE DELIVERY

By

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ABSTRACT

REHABILITATION COUNSELOR SELF-EFFICACY AND WORK ENVIRONMENT FACTORS THAT PROMOTE THE USE OF EVIDENCE-BASED PRACTICES IN VOCATIONAL REHABILITATION SERVICE DELIVERY

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The National Institute of Disability and Rehabilitation Research (NIDRR) have emphasized the focus on evidence-based practices (EBP) in all research projects publicly funded through NIDRR (Brannon, 2010). There is now a heightened emphasis on the meaning of research findings and translating and disseminating evidence-based practices so they affect and inform practice and policy (Leahy & Arokiasamy, 2010). NIDRR and the Rehabilitation Services Administration (RSA), as the major funding sources of rehabilitation research, are working to close the gap between practice and EBP research. In a resource-limited environment, evidence of efficacy and effectiveness can help make programmatic funding decisions more rational and, hopefully, more equitable (Brannon, 2010). The current climate calls for empirical evidence to justify VR services, along with the emphasis on the development and implementation of evidence-based practices that can assist state-federal VR programs that are under increasing pressure to demonstrate the effectiveness of VR service provision.

The current study was undertaken to explore rehabilitation counselor self-efficacy, perceived benefits of EBP, perceived barriers to the use of EBP, and rehabilitation counselor readiness to use EBP. A sample of 318 certified rehabilitation counselors (CRC) employed in the state-federal VR program, community rehabilitation organizations (CRO), private for profit/workers compensation, and other practice settings within the United States was obtained for this study from the Commission on Rehabilitation Counselor Certification (CRCC) membership base.

Results of this study indicate that CRCs demonstrate self-efficacy in the use of EBP by selecting appropriate interventions for their clients in the provision of VR services, understand and value the potential benefits of EBP for clients, and acknowledge barriers to EBP use at the organizational and practitioner levels. In addition, counselor education level, i.e., holding a doctorate degree was found to be a significant, positive predictor or rehabilitation counselor self-efficacy while employment in the state-federal VR program was a significant, negative predictor of rehabilitation counselor self-efficacy.

The data generated by this study can be used by a rehabilitation administrators, researchers, educators and counselors to promote the use of EBP in order to improve employment outcomes for individuals with disabilities. The data may also be used to develop pre-service curriculum to train future rehabilitation counselors how to develop and implement EBP in their practice. Specific implications for EBP in VR service delivery and future research are provided.

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CHAPTER 1

INTRODUCTION

The unemployment rate for people with disabilities remains high as compared to people without disabilities, and has remained constant despite programs and resources devoted to the employment of people with disabilities. In federal fiscal year 2011, the U.S. federal government spent \$3,997,671,547 dollars for the provision of vocational rehabilitation (VR) services to eligible individuals with disabilities (Annual Disability Statistics Compendium, 2013). However, of the 326,627 individuals who either initiated or completed services and received services through the state-federal vocational rehabilitation program in federal fiscal year 2011, only 175,441 achieved a successful employment outcome for a 53.7% rehabilitation rate (Annual Disability Statistics Compendium, 2013).

While the general effectiveness of vocational rehabilitation counseling has been empirically demonstrated (Pruett, Rosenthal, Swett, Lee & Chan, 2008), there is a serious lack of specific evidence-based practices (EBP) that accurately define what specific VR service(s) produce employment outcomes for individuals with disabilities that participate in the statefederal VR program (Leahy & Arokiasamy, 2010). Aside from supported employment programs, few examples of evidence-based VR service delivery practices are known to exist. Law (2002) states that current rehabilitation interventions are not empirically supported, but are primarily based on experience, and are eminence or habit based. State-federal VR agencies will need to know what service provision patterns have a high probability of predicting successful outcomes for VR customers. The new emphasis on demonstrating VR service delivery effectiveness challenges state-federal VR agencies to address the long-standing question of, *"What* treatment, by *whom*, is most effective for *this* individual with *that* specific problem, and

under *which* set of circumstances?" (Paul, 1967, p. 111). State-federal VR agencies have attempted to address this challenge through the development and implementation of innovative, best practices designed to enhance employment outcomes for eligible agency customers.

In addition to determining which approach works best for whom, how and under what conditions, there are both internal and external pressures for rehabilitation counselors in statefederal VR programs to demonstrate they are using an array of evidence-based interventions in their practice to improve employment outcomes for customers with significant disabilities (Rubin, Chan & Thomas, 2003). The Work Incentives Improvement Act of 1999 and the Workforce Investment Act of 1998, require the state-federal VR program to demonstrate service efficacy in order to maintain and expand program funding and services (Kosciulek, 2004). In addition, the National Institute of Disability and Rehabilitation Research (NIDRR) has emphasized the focus on EBP in all research projects publicly funded through NIDRR (Brannon, 2010). There is now a heightened emphasis on the meaning of research findings, and translating and disseminating evidence-based practices so they affect and inform practice and policy (Leahy & Arokiasamy, 2010).

In a resource-limited environment, evidence of efficacy and effectiveness can help make programmatic funding decisions more rational and more equitable (Brannon, 2010). The current climate calls for empirical evidence to justify VR services, along with an emphasis on the development and implementation of evidence-based practices that can assist state-federal VR programs demonstrate effectiveness of VR service provision. As Chan, Tarvydas, Blalock, Strauser & Atkins (2009) state, "rehabilitation counseling must [begin to] embrace an evidence-

based practice paradigm to remain a vital and respected member of the future community of professionals in rehabilitation and mental health care" (p. 114).

Statement of the Problem

Little is known about what specific and manualized services or interventions might contribute differentially to improve employment rates of subpopulations with low employment outcomes (Leahy, et al., 2014). EBP research has centered on the efficacy of EBPs in the provision of VR service delivery with an acknowledgement of how EBPs influence other areas of rehabilitation counseling practice and service delivery. Current EBP initiatives described in the literature cover a variety of topics ranging from EBP decision models, knowledge translation (KT), pedagogy, ethics, rehabilitation counselor knowledge, application of EBP and adaptation of emerging best practices (Leahy, et al., 2014).

Fleming, Del Valle, Kim & Leahy (2013) conducted a literature review of empirical studies related to employment-focused interventions and present models of best practice existing in the literature. Of the 561 empirical articles reviewed, only 35 empirical studies met the search criteria of presenting services or models with initial evidence of supporting employment outcomes. The research concluded that evidence-based practices, although existing in specific areas of rehabilitation counseling and VR service delivery, are still not a common practice at the system or practitioner level, are inconsistent in application and scope, and lack a formal methodological approach on how to design, implement, and analyze results.

Recently, Leahy et al. (2014) completed a multiple qualitative case study of four statefederal VR agencies to determine the use of innovative, best practices. The research captured many innovative practices at the system and practitioner levels. However, outside of particular established practices such as evidence-based supported employment, few of the innovative best practices incorporated an evaluation or measurement component to demonstrate service delivery effectiveness.

At the practitioner level, there are multiple barriers that preclude the use of EBP in VR service delivery. Graham et al. (2013) conducted a study to identify barriers and facilitators regarding the use of EBP by professional staff of state-federal VR agencies. The results indicate that the majority of VR staff who participated in the study value research for practice. The multiple barriers described included; EBP is not widely encouraged by the agency, rehabilitation counselors are not expected to use EBP in service provision, lack of agency resources, limited counselor time to research EBP, and lack of agency incentives to incorporate EBP into service provision. Graham et al. noted the consistently high unemployment rate for individuals with disabilities and stress the importance of EBP in VR service delivery as a bridge for unemployed individuals with disabilities to gain employment.

Bezyak, Kubota and Rosenthal (2010) reported rehabilitation counselors hold generally positive attitudes toward EBP. However, they report lack of knowledge and insufficient academic preparation as major obstacles hindering implementation. In addition, professionals point to limited motivation and interest, poor confidence, negative attitudes, and limited understanding of the value of research as barriers to EBP (Winch, Henderson, & Creedy, 2005). O'Donnell (2004) suggests that the most significant of these barriers is time. Practitioners are often required to spend at least eight hours each day providing direct service, and as a result, there is limited time for trainings of new evidence (Corrigan, Steiner, McCracken, & Barr, 2001). Certainly, many of these variables must be considered when attempting to increase the application of evidence in vocational rehabilitation counseling and VR service provision.

Despite obvious barriers, EBP holds counselors accountable and provides an indication of cost-effective services in an increasingly expensive healthcare system. This accountability is necessary because healthcare systems, including vocational rehabilitation, are moving from provider-driven to payer-driven systems (Chan et al., 2003). This move will demand increased accountability, but it may also lead to additional funding opportunities. According to Tannenbaum (2003), public policy makers equate accountability with numbers. Quantitative research provides these numbers, which indicates that money, effort, and resources are not being wasted, and it allows counselors to provide the best possible services for their clients (Chan et al., 2009). During a time in which local, state, and national budgets are declining and expenditures on services are coming under even greater scrutiny, state vocational rehabilitation agencies must prove the effectiveness of services in order to compete for and receive funding to provide services (Rubin, Chan & Thomas, 2003).

Purpose of the Study

A recent study by Tansey, Bezyak, Chan, Leahy & Lui (2014) found that counselors in four state-federal VR agencies were confident in their ability to use EBP at a conceptual and decision-making level and less confident in the technical understanding of research design and statistical methods, and interpreting the best evidence information from multiple sources. The VR counselors also did not see insurmountable agency and personal barriers to use EBP in VR practices. Specifically, they identified agency barriers, such as the lack of support from senior management/supervisors, as significant barriers to EBP use in practice. This study will explore the relationship between counselor self-efficacy and work environment factors that influence and/or inhibit the use of EBP in VR service delivery.

Description of the Study

This study will support the use of the Evidence-Based Practice in Vocational Rehabilitation Survey (EBP-VR Survey; Chan, Bezyek & Lui, 2013). Tansey, Bezyek, Chan, Leahy & Lui (2014) administered the Evidence-based Practice in Vocational Rehabilitation Survey, (EBP-VR Survey) to counselors in four state-federal VR agencies. This study will use the EBP-VR Survey to explore counselor self-efficacy, perceived benefits, perceived barriers and readiness in the use of EBP on a larger sample, i.e. the Commission or Rehabilitation Counselor Certification (CRCC) membership data base.

Research Questions

This study will explore rehabilitation counselors' self-efficacy in the use of evidencebased practices and organizational support for the use of evidence-based practices in VR service delivery. Specifically, this study will explore the relationship between counselor self-efficacy and work environment factors that influence and/or inhibit the use of EBP in VR service delivery. The research questions of interest in this study are as follows:

- 1. What are rehabilitation counselor's perceived self-efficacy, outcomes expectancy, barriers and readiness to use evidence in current VR service delivery practices?
- What is the difference between practice settings and Rehabilitation Counselor EBP Self-Efficacy (RCSE) and Environmental Factors (EF) that influence the use of evidence-based service delivery practices:
 - a. State-Federal VR Program
 - b. Community Rehabilitation Program (CRO)
 - 6

c. Private for Profit/Workers Compensation Rehabilitation

3. Are there differences between CRC demographics (i.e. gender, years of practice, practice setting, etc.) that influence Rehabilitation Counselor EBP Self-Efficacy (RCSE)?

Assumptions and Limitations

A major assumption of this study is rehabilitation counselor understanding of evidencebased practices. Graham et al. (2013) asked state-federal VR counselors and other professional rehabilitation staff what they know about evidence-based practice and how do they use the information. The results indicated that rehabilitation professionals held multiple definitions of evidence-based practice, "research-based", "documented evidence", "proven effective" and "practice or experience" reflecting a basic knowledge of EBP. Another assumption concerns how EBP is valued by rehabilitation counselors across the three proposed areas of study, i.e. the state-federal VR program, community rehabilitation organizations, and private rehabilitation/workers compensation practice settings. While each practice setting strives to achieve competitive employment outcomes for their clients, program effectiveness and outcomes are measured differently. RSA standards and indicators are the measurements for the statefederal VR program and the Commission on Accreditation of Rehabilitation Facilities (CARF) provides standards for private and community rehabilitation programs. These outcome measurements drive the VR service delivery process, and may challenge the development and use of EBP within the different service delivery models. Additionally, each group is accountable to different stakeholders that hold considerable influence over service delivery efforts. For example, state-federal VR programs are accountable to RSA, client advocacy organizations and political entities while private rehabilitation providers are accountable to insurance providers in

order to receive payment for services rendered. To ignore these realities is to neglect environment and systemic issues that challenge the implementation of EBP in VR service delivery.

Potential limitations considered within the framework of this study include the sample, sample size, and use of electronic surveys and questionnaires. First, this study will utilize a convenience sample comprised of Commission on Rehabilitation Counselor Certification (CRCC) members. CRCC members who are employed and belong to a professional organization may be different than rehabilitation professions who are employed but do not belong to a professional organization (Zanskas & Strohmer, 2011). Second, sample size may be a limitation based on survey response frequency. Current trends in survey research reflect that refusal and non-response rates have doubled for all surveys, regardless of type during the past decade (Birnbaum, 2004; Sheehan, 2001; Survey Monkey, 2008; Tourangeau, 2004). Heppner, Kivlingham, and Wampold (1992) reported that survey research is often published with less than 40% response rates. A monograph published by RAND reflects web survey response rates range from 7%-44% (Schonlau, Fricker, & Elliot, 2002). The overall decline in e-mail survey response rates has been attributed to the number of people who do not read their e-mail (Birnbaum, 2004; Welker, 2001). Welker (2001) studied the web-based response rate of 900 individuals with fixed email accounts. An overall response rate of 14% was reported and it was determined that over one-third of the random sample simply did not read their e-mail over a two month period.

This study will explore the relationship between rehabilitation counselor self-efficacy and work environment factors that influence the use of EBP in VR service delivery. Bandura's (1986) Social Cognitive Theory and Prochasha & Norcross' (1992) Stages of Change Theory will serve as the theoretical frame work.

Definition of Terms

Certified Rehabilitation Counselor. Rehabilitation counselors who are certified through the Commission on Rehabilitation Counselor Certification (CRCC) as having at least an acceptable minimum level of knowledge and skills to practice as a professional in rehabilitation counseling.

Evidence-Based Practice (EBP). A clinical decision-making process beginning with formulating clinical questions to ask, determining the best practice, and critically appraising the evidence for validity and applicability to the particular situation. The best evidence must then be applied by a clinician with expertise in considering the client's unique values and needs. The final aspect of the process is evaluation of the effectiveness of care and continual improvement of the process (DePalma, 2002; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996).

Rehabilitation Counselor. A counseling practitioner with a master's degree who assists persons with disabilities with physical, mental, developmental, cognitive, and emotional disabilities to achieve their personal, career, and independent living goals in the most integrated setting possible through the application of the counseling process. Techniques and modalities used by rehabilitation counselors may include, but are not limited to: (a) assessment and appraisal; (b) diagnosis and treatment planning; (c) career (vocational) counseling; (d) individual and group counseling; (e) case management, referral, and service coordination, (f) program evaluation and research; (g) interventions to remove environmental, employment, and attitudinal barriers; (h) consultation services among multiple parties and regulatory systems; (i) job analysis, job development, and placement services, including assistance with employment and job accommodations; and (j) the provision of consultation about and access to rehabilitation technology (CRCC Scope of Practice, 2012).

Self-Efficacy. Self-efficacy theory is defined as the individual's perceived ability related to their actual ability (Bandura, 1977; Bandura, 1982). According to the theory, an individual's perceptions impact their behaviors and actions. For example, if a counselor believes they can provide an effective service to their client(s) (i.e. perceived competency to deliver evidence-based practices), their thoughts and behaviors are shaped by the perceived competency and they are likely to provide the effective service to their clients.

Stages of Change. Prochaska & Norcross (2001) posit that behavior change is a conceptualized process that unfolds over a time and involves progression through a series of six stages: pre-contemplation, contemplation, preparation, action, maintenance and termination. The six stages involve different processes of change that produce optimal progress and behavior change.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study is explore the relationship between counselor self-efficacy and work environment factors (perceived barriers) that influence and/or inhibit the use of EBP in VR service delivery. A literature review was conducted that begins with a description of the current state of EBP in rehabilitation counseling and VR service delivery. This is followed by theories that describe the concept of self-efficacy and behavior change, specifically Azjen & Fishbein's (1980) Theory of Reasoned Action, Bandura's (1986) Social Cognitive Learning Theory, and Prochaska & Norcross' Stages of Change (2001). The literature review concludes with a review of Eisenberger, Huntington, & Sowa's (1986) Perceived Organizational Support (POS) theory regarding perceived organizational support as motivation for individual behavior change, and Roessler & Mullins (1995) Interactional Psychological model of counselor self-efficacy in terms of an interaction between counselor personal factors and demands of the work environment.

The Current State of Evidence-Based Practices in VR Service Delivery:

Emphasis on Counseling Skills

The effectiveness of rehabilitation counseling has been empirically demonstrated (Pruett, Rosenthal, Swett, Lee & Chan, 2008), however there is limited research regarding rehabilitation counselor use of EBP in VR service delivery. As Leahy et al. (2014) noted, little is known about what specific and manualized services or interventions might contribute differentially to improve employment rates of subpopulations with low employment outcomes. This is especially true in terms of counselor self-efficacy with the development and implementation of EBP into practice. This is understandable given the profession's emphasis upon counselor self-efficacy in terms of counseling skills (McCarthy, 2012). The Commission on Rehabilitation Counselor Certification (CRCC) Scope of Practice Statement (2012) states, " individual and group counseling treatment interventions focused on facilitating adjustment to the medical and psychosocial impact of disability"(p.1) as an essential counseling function of rehabilitation counselors. Also, the need for counseling skills are incorporated into the Council on Rehabilitation Education (CORE) standards that students engage in practicum experiences that, "facilitate the development of basic rehabilitation counseling skills" (CORE, 2009, p.16). Knowledge of individual and career counseling has been reported by practicing certified rehabilitation counselors as important effective practice (Leahy, Muenzen, Saunder, & Strauser, 2009), and clients want and need rehabilitation counselors who employ counseling skills (Lustig, Strauser, Rice, & Rucker, 2002).

Recently, McCarthy (2012) explored the relationship between rehabilitation counselor self-efficacy for counseling skills and client outcomes within the public VR system. Results of the study indicate that efficacy for counseling microskills (e.g., paraphrasing, confrontation) and efficacy for handling difficult client behavior (e.g., clients that lack motivation, clients in crisis) were positively correlated with successful client outcomes. Of note, clinical supervision and the work environment were not cited as contributing towards successful client outcomes. McCarthy's results reflect the traditional pre-service training and research that emphasize counseling skills as a major foundation of the profession vs. implementing EBP in VR service delivery.

Understanding EBP and Levels of Evidence

Understanding of EBP in VR service delivery reflects multiple issues ranging from definitions of EBP, levels of EBP, developing and implementing EBP, ethical considerations involving EBP, and barriers to EBP implementation. These issues are discussed below, however it is important to bear in mind that the approach to developing and implementing EBP is

currently conceived as a linear process. Meaning that EBP appears to evolve from a linear process of research to dissemination to practice. It should be noted that implementation of EBP involves multiple layers of application according to the nature of the evidence, context or environment in which the evidence is to be applied and how the evidence is facilitated into practice.

According to Bezyak, Kubota & Rosenthal (2010) evidence-based practice has become a focus in many healthcare arenas. Physicians, nurses, physical therapists, and occupational therapists to name a few are increasingly interested in the available evidence to support practice (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Sackett et al. stated that evidence-based practices are not only a focus for healthcare practitioners, but is also important to purchasers, planners and the public. Sackett et al. defines evidence-based practices as integrating individual clinical expertise with the best available clinical evidence from systematic research. In this definition, clinical expertise refers to proficiencies and clinical decisions that evolve within individual clinicians through clinical experience and practice. Ingersoll (2000) provided a more general definition of EBP as a, "conscientious, explicit, and judicious use of theory-derived, research-based information in making decisions about care delivery" (p. 152). McCluskey and Cusick (2002) added an important component to this definition by reminding readers that EBP is about, "using, rather than doing research" (p.63).

Strauser & Wong (2010) contend that despite purported strengths of adapting a model of evidence-based practice, there are a variety of challenges that may limit utilization and adaptation of the evidence-based model in rehabilitation and rehabilitation counseling settings. Strauser & Wong cite four prevailing issues that confront the use of evidence-based practice in rehabilitation and rehabilitation counseling. First, is the broad multidisciplinary nature of

rehabilitation and rehabilitation counseling in which multiple outcomes are appropriate for the individuals served (i.e. employment, independent living, etc.). Second, the breath and complexity of rehabilitation service delivery complicate the rehabilitation research process. Third, studies in rehabilitation use small sample sizes and do not use or analyze blinding or placebo effects. Finally, of major concern is the overall lack of Level 1 studies or Randomized Control Trials (RCT). In the hierarchical levels of evidence, rehabilitation counseling research typically falls within Level 4 and Level 5. Table 1 below describes the hierarchical level of evidence.

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Hierarchical Levels of	Evidence
Levels of Evidence	Description
Level 1	Strong evidence from at least one systematic review of multiple well-
	designed randomized controlled trials.
Level 2	Strong evidence from at least one properly designed randomized
	controlled trial of appropriate size.
Level 3	Evidence from well-designed trials without randomization, single
	group pre-test, cohort, time series or matched case controlled studies.
Level 4	Evidence from well-designed non-experimental studies from more

than one center or research group.

Table 1.	
Hierarchical Levels of Evidence	2

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Level 5

Source: Chronister et al., 2008.

Chan et al. (2010) cites multiple challenges to EBP implementation such as the broad array of services provided within the rehabilitation counseling scope of practice, lack of scientific rigor in rehabilitation counseling research, rehabilitation counselors may not possess the skills necessary to evaluate and incorporate research findings into practice, limited training in academic search skills, along with time and potential organizational barriers. However, in light of the challenges facing evidence-based practices in rehabilitation counseling, Chan et al. provide a four step clinical decision-making model to assist with implementing EBPs. The four

Evidence from opinions or respected authorities, based on clinical

evidence, descriptive studies, or reports of expert committees.

steps are 1) formulate a well-defined question(s), 2) seek best evidence to answer the questions(s), 3) critically appraise the evidence, and 4) apply evidence to the individual client. McCabe (2004) suggests an additional step to the process of evaluating outcomes on a continuing basis.

Tarvydas, Addy & Fleming (2010) provide a new perspective of EBP research in rehabilitation counseling as moving from a dichotomy for "either/or" to a dialectic of "this/and" thinking. This approach allows for the inclusion of critical aspects of EBP to the longstanding practices in rehabilitation counseling research and practice. Tarvydas et al. contend that EBP upholds ethical principles in that it allows customers to make informed choices and supports the five major ethical principles of autonomy, justice, fidelity, beneficence and non-maleficence. This includes support for the CRCC Code of Professional Ethics (2010), specifically Standard D.1: Competency to provide competent services to their clients and not to provide services not personally competent to render and Standard D.6.a in which rehabilitation counselors are obligated to use techniques and procedures that have an empirical or scientific foundation (Neulicht, McQuade & Chapman, 2010).

Evidence-Based Practices and Environmental Factors

In addition to emphasis on the relationship between rehabilitation counselor self-efficacy in the use of EBP, there are organizational elements (environmental factors) that may inhibit the use of EBP. Winch, Henderson and Creedy (2005) noted that barriers to the use of EBP are often symptoms of organizational contexts that have not been established to integrate evidence into practice. Characteristics of the organization setting (e.g., hospital vs. outpatient setting) were also related to the use of evidence-based practice and related attitudes (Nelson & Steele, 2007). Winch et al. (2005) noted professionals often point to limited motivation and interest,

poor confidence, negative attitudes, and limited understanding of the value of research as barriers to evidence-based practice. Both organizational and individual characteristics include lack of knowledge to properly assimilate evidence-based practice on the part of service providers, poor leadership, bureaucratic constraints, and a change-averse culture (Corrigan, Steiner, McCracken, Blaser, & Barr, 2001). Limited training and education of practitioners, limited access to evidence, and the complexity of research databases serve as barriers to evidence-based practices (Jette et al., 2003; Nelson & Steele, 2007). A study of occupational therapists and EBP revealed that less than one-third of the participants searched the literature on research information to apply to practice (Rappolt & Tassone, 2002). O'Donnell (2004) indicated that time is a major barrier to fully implementing evidence-base practice with practitioners spending at least eight hours each day providing direct service, resulting in limited time for training of new evidence or practices as did Corrigan et al. (2001).

Evidence-Based Practices and Rehabilitation Counselor Perceptions

Bezyak, Kubota & Rosenthal (2010) examined the perceptions of evidence-based practice among rehabilitation counselors. The results of their study indicate that rehabilitation counselors believe the application of evidence-based practice is necessary, useful and will lead to improved quality of VR service delivery. Rehabilitation counselors reported positive attitudes towards evidence-based practices in general. However, there were mixed results related to the knowledge and skills necessary to engage in evidence-based practices and somewhat limited use of research literature in practice. A large majority of participants had access to professional journals and access to research databases at in the work environment. Barriers to using evidence-based practices included insufficient time, lack of generalizability to current practice and the inability to apply research findings to individual clients (Bezyak, Kubota & Rosenthal, 2010).

Graham et al. (2013) asked state-federal VR counselors and other professional rehabilitation staff what they know about evidence-based practice and how do they use the information. The results indicated that rehabilitation professionals held multiple definitions of evidence-based practice, "research-based", "documented evidence", "proven effective" and "practice or experience". The majority of participants reported they value research for practice, understood how to interpret research literature and apply the information in their job. The study participants described a wide variety of sources of information in relation to the job. Many reported informal networks of collaboration with other professionals, meeting with consumers, informal conversations in offices or with consumers' families as methods to gather information for practice. Other sources included training, a wide variety and accessibility to resources and professional networking. Regarding agency promotion of evidence-based practices it was noted that EBP was not widely encouraged, with little supervisory support for the use of EBP in service delivery and making planning decisions.

Tansey, Bezyak, Chan, Leahy & Lui (2014) conducted a study to identify and describe vocational rehabilitation professional's perceived self-efficacy, outcome expectancy, barriers and readiness to use evidence in current practice. The results from rehabilitation counselors employed in four state-federal VR agencies reported moderately high self-efficacy in the use of EBP and outcome expectancy. Participants reported moderately low levels of barriers to the use of EBP. Perceived barriers were reported higher at the agency level than at the individual level. Of the barriers reported were lack of support among agency colleagues, insufficient training to

incorporate EBP into practice, little support and encouragement from senior management and lack of experience among supervisors and counselors experienced in EBP.

The understanding of EBP as applied to VR service delivery includes a variety of issues within different dimensions of rehabilitation counseling. EBP can be defined and contrasted with different levels of evidence, and steps are provided as to the development and implementation of EBP. Ethical considerations, counselor knowledge of EBP and organizational challenges are also noted as affecting EBP implementation. What is missing from the current dialogue is counselor self-efficacy and environmental factors that influence the ability to institute EBP in service delivery practices. To address this gap, a review of Azjen & Fishbein's (1980) Theory of Reasoned Action, Bandura's (1986) Social Cognitive theory, and Prochaska & Norcross (2001) Stages of Change (SOC) theory is presented below. The discussion will also include Rosselor & Mullin's (1995) interaction between counselor self-efficacy, counselor duties and the environment.

Ajzen & Fishbein: Theory of Reasoned Action

Prior to describing self-efficacy, it is important to discuss the underlying concepts that influenced the development of Bandura's (1986) Social Cognitive Theory of Learning. A Theory of Reasoned Action (Ajzen & Fishbein, 1980), posited that human beings are quite rational and make systematic use of the information available to them. As described by Fall (1991), Ajzen & Fishbein did not subscribe to earlier theories of human social behavior controlled by unconscious motives or overpowering desires. They believed that human social behavior was not "capricious or thoughtless" in nature (p.5). Instead, Ajzen & Fishbein argued that people consider the consequences of their actions, before they decide to engage or not engage in a given behavior leading to a "theory of reasoned action" (p. 5). The decision to engage or not engage in a behavior was attributed to an individual's intention to perform or not perform a behavior as the immediate determinant of the action. Individuals will most likely act in accordance with his or her intention (Ajzen & Fishbein, 1980). Intentions do not operate in isolation, but are influenced by determinants that shape the intention of whether or not to engage in a particular action (Fall, 1991).

Individual Attitude and Social Influence

Ajzen & Fishbein (1980) divided intention into two basic determinants; one that is personal in nature and one reflecting social influence. The personal determinant, or attitude, is the individual's positive or negative evaluation of performing the behavior. Attitude toward a behavior is the individual's judgment whether performing the behavior is good or bad, or simply for or against performing the behavior (Ajzen & Fishbein, 1980). Social influence is the individual's perception of the social pressures placed on him or her to perform the action in question. The social influence determinant is referred to as the subjective norm and relates to the perception that if others important to the individual believe the action should be engaged or not engaged, individuals will act accordingly based on the important others perception. It is important to keep in mind that both factors are determinants of intention. Each determinant will vary in importance, one factor may have a greater weight than the other and the factors may vary from one individual to another (Ajzen & Fishbein, 1980). Frequently, both attitude and subjective norm are important determinants of the intention.

According to the theory of reasoned action (Ajzen & Fishbein, 1980), attitudes are a function of beliefs. In general, if an individual holds a positive belief that performing an action will result in a positive outcome, the individual will have a favorable attitude toward performing

the behavior. The opposite is also true. If an individual holds a negative belief that performing a particular action will result in a negative outcome, the individual will hold a negative attitude towards performing the behavior (Ajzen & Fishbein, 1980). Attitudes towards behaviors are termed behavioral beliefs.

Fall (1991) states subjective norms also function as beliefs in relation to whether specific individuals or groups think he or she should perform the behavior. These beliefs are called normative beliefs as it describes the ability to perform or not perform a behavior based on social pressure to comply with a referent group's perceived preferences towards the behavior. If an individual perceives the referent group to be favorable towards a behavior he or she will likely engage in the behavior. Similarity, if the individual perceives the referent group to hold a negative attitude towards the behavior he or she will avoid performing the behavior (Ajzen & Fishbein, 1980). Figure 1 reflects the attitude and social factors that determine an individual's behavior.

Figure 1. Factors Determining a Person's Behavior



Note: Arrows indicate the direction of influence (Ajzen & Fishbein, 1980).

The Theory of Reasoned Action (Ajzen & Fishbein, 1980) provides an alternative theory of human behavior based on intention to perform or not perform a behavior vs. early theories of human behavior being simply a response to external stimuli. The Theory of Reasoned Action describes human behavior as rational based on using the information available. Individuals develop intention to engage or not engage in behaviors based on their attitudes towards the behavior and subjective norms resulting from related social pressures (Fall, 1991). Additionally, individuals used behavioral normative beliefs when determining whether to perform or not perform a behavior. It should be noted that Ajzen (1991) later expanded the theory of reasoned action to one of a prediction of individual behavior called the Theory of Planned Behavior. Ajzen distinguishes the theory of planned behavior from his previous theory of reasoned action in that people act in accordance with their intentions and perceptions of control over the behavior, while intentions in turn are influenced by attitudes towards the behavior, subjective norms and perceptions of behavioral control. The introduction of perceptions of control over the behavior within the theory of planned action is what separates it from the earlier theory of reasoned action. The theory of planned behavior extends into the Bandura's (1986) social cognitive theory in which the element of perceived control over behavior is a key element of self-efficacy.

Missing from the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (Ajzen, 1991) is an account of how an individual's belief in their ability to perform a behavior will influence outcome expectancy of the behavior. The theory of reasoned action does not address an individual's belief in their ability to perform behaviors nor how belief in ability affects outcome expectancy. Addressing this gap is Bandura's (1986) Social Cognitive Theory of Learning. In his social cognitive theory of learning, Bandura contends that individual learning is by observing and extracting rules and structures of behavior from social interactions and the surrounding environment. Through vicarious learning individuals come to understand the effects and results of behavior and can develop mastery of learned skills through various forms of practice, leading to positive outcome expectancy (Bandura, 1986).

Bandura: Social Cognitive Theory

Prior to the arrival of Bandura's (1986) Social Cognitive Theory of learning, it was widely held that competencies and new patterns of behavior were learned through the consequences of responses to stimuli, was controlled by situational influences or in response to instincts, drives, traits, and other motivational forces within the individual (Bandura, 1978). These early conceptions of human behavior portrayed learning as a trial and error process in which learning effective behaviors in order to perform activities with successful outcomes not only tedious, but difficult at best (Fall, 1991). Bandura (1978) posited that individual's learn by observing and extracting rules and structures of behavior from social interactions and the surrounding environment. Individuals vicariously learn social behaviors and observe the effects of these behaviors on others, the surrounding environment and the individual performing the action. Cognitive images of the desired behavior are retained for future use until such a time a symbolic construction of the behavior can be recall and used to guide behavior (Fall, 1991).

Mastery of Behavior

Once the behavior has been observed, individuals learn to master the behavior through modeling. Mastery of a behavior usually begins with a model verbally sharing their thoughts and actions during performance of the behavior, resulting in a vicarious learning experience. The behavior is then broken down into small manageable progressive actions that are dependent on

previously demonstrated behaviors, leading to successful outcomes. These steps are repeated until the individual can perform the behavior successfully without assistance or guidance (Fall, 1991). This success in outcomes instills a general sense of coping efficacy and changes an individual's belief in their ability to perform the required behaviors (Bandura, Jeffery & Wright, 1974).

It is important to note the question of how behavior is acquired and regulated. The theory of self-efficacy states that cognitive based processes regulate behavior while reality demonstrates that mastery of performance is the most influential in cognitive, affective and behavioral changes (Bandura, 1986). This difference between theory and practice is not contradictory. Bandura explains that while it is cognitive factors that mediate change, cognitive factors are induced and altered most by the experience of mastery performance (Fall, 1991).

Reciprocal Determinism

A key concept within social cognitive theory is that of "reciprocal determinism" (Bandura, 1986). Reciprocal determinism explains psychosocial behaviors in terms of a triadic reciprocal causation (Bandura, 1986, Wood & Bandura, 1989). The triad elements are behavior (B), environmental influences (E) and personal cognitive events that can influence perceptions and actions (P). These three elements interact as determinants of each other and the intensity of the three elements will vary. However, they interact in a way that each is both a product and producer of the others (Wood & Bandura, 1989).

Figure 2. Schematic Representation of Three Alternative Conceptions of Interaction.



In the figure above, B signifies behavior, P is the cognitive and other internal events that can affect perceptions and actions, and E the external environment.

The personal determinants (P) in the interactional causal structure play a major role in social cognitive theory. Bandura (1977) theorized that of these self-efficacy operates as a self-regulator of both motivation and performance. Perceived self-efficacy is the individual's belief that he/she possess the knowledge, skills and the ability to transform these into behaviors leading to the desired action (Bandura, 1977). However, while the individual may possess the necessary knowledge and skills, it does not mean they was able to translate either in action. The individual needs to believe they can perform the necessary actions and it will result in the desired outcome (Fall, 1991). "Perceived self-efficacy concerns people's beliefs in the capabilities to mobilize the motivation, cognitive resources, and other courses of actions needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 364).

Outcome Expectancy

Bandura (1986) emphasized the difference in self-efficacy expectancy and outcomes expectancy, including how they operate together. Efficacy expectancy is the belief that an individual is or is not able to perform the necessary actions to reach the intended to goal, while outcome expectancy is the belief that a certain behavior will have a specific outcome (Bandura, 1986). The expectancy that an individual holds concerning mastery is composed of these two related expectancies (Maddux, Norton & Stoltenberg, 1986) as depicted in Figure 3 below.

Figure 3. *Relationship of Efficacy and Outcome Expectancies*



Outcome expectancy and self-efficacy expectancy are independent in the sense that selfefficacy judgments are arrived at independently of potential outcomes (Bandura, 1977). Outcome types anticipated are strongly influenced by self-efficacy judgments (Bandura, 1984).

Self-Efficacy Beliefs

There are four principal sources of self-efficacy beliefs: mastery experience, modeling, social persuasion, and physiological indices (Bandura, 1977). Fall (1991) describes the four principle sources of self-efficacy below:

- Mastery experience exerts the most powerful influence on self-efficacy expectancies.
 Performance success builds capability, while failure creates self-doubt.
- Vicarious experiences consist of modeling, imitation and observational learning.
 Observing success builds observers' beliefs in personal capabilities. Observing failure builds observers' beliefs in personal inability to perform the behaviors satisfactorily.
 Efficacy beliefs which are based on vicarious experience can be quickly altered when performance is not in line with beliefs. These experiences are the second most powerful source of efficacy information.
- 3. Verbal or social persuasion encourages people to exert extra effort and to believe in their capabilities but can be extinguished by both performance and vicarious information.
- 4. Emotional arousal signals an individual through physiological indices that a certain level of performance will probably be the result of these actions. Arousal can signal an individual that an excellent or a poor performance will probably result.

These four types of experiences strengthen or weaken beliefs about capabilities (Fall, 1991). Information from the four sources is appraised by an individual in an inferential process in which the contributions of personal and situational sources are weighed and combined (Bandura, 1981). An efficacy judgment, of self-efficacy expectancy, was formed as a result of this cognitive appraisal.

Effects of Self-efficacy Beliefs

Fall (1991) outlined three main effects of self-efficacy beliefs according to self-efficacy theory. These beliefs are listed below;

- Self-efficacy affects choice behavior. Individuals accept choices of activities and social situations where they believe that they was successful (Bandura, 1988). Most people avoid situations they believe will tax them beyond their capabilities.
- Self-efficacy affects motivation. This is reflected in how long individuals will persevere and how much effort they will contribute. Individuals with strong beliefs in their capabilities will exert greater effort to master a situation or behavior (Bandura & Cervone, 1983), whereas individuals who doubt their abilities will only exert a small amount of effort and quickly give up should they experience failure. Bandura states in personal

dialog that persistence and effort are responsible for many great achievements, since famous individuals often refuse to abandon projects even when met with failure (Evans, 1989).

3. Self-efficacy affects thinking processes. When an individual experience challenges, their thinking processes can assist or hinder the individual. Individuals with low self-efficacy dwell upon personal deficiencies and environment barriers instead of attempting to effect change (Beck, 1976, Meichenbaum, 1977). Self-referent misgivings create stress, lower self-efficacy and can lead to possible depression and/or resignation of no change. On the other hand, highly efficacious individuals will devote their energy and resources to overcoming a problem. Environmental-referent misgivings will create little stress and unchanged self-efficacy (Fall, 1991).

Self-efficacy theory is defined as the individual's perceived ability related to their actual ability (Bandura, 1977; Bandura, 1982). According to the theory, an individual's perceptions impact their behaviors and actions. For example, if a counselor believes they can provide an effective service to their client(s) (i.e. perceived competency to deliver evidence-based practices), their thoughts and behaviors are shaped by the perceived competency and they are likely to provide the effective service to their customers. Self-efficacy theory can be used to study the expectations individuals have regarding their performance in activities. Much like a rehabilitation counselor's perceived competency to deliver effective VR services using evidence-based practices, thereby enhancing their clients' employment outcomes.

Prochaska & Norcross: Stages of Change (SOC)

Prochaska & Norcross (2001) posit that behavior change is a conceptualized process that unfolds over a time and involves progression through a series of six stages: pre-contemplation, contemplation, preparation, action, maintenance and termination. The six stages involve different processes of change that produce optimal progress and are outlined below;

- 1. Pre-contemplation. A stage in which there is no intention to change behavior in the foreseeable future.
- 2. Contemplation. Is the stage which individuals are aware that a problem exists and are seriously thinking about overcoming it, yet have not made a commitment to take action.
- 3. Preparation. Combines intention and behavioral criteria. Individuals in this stage are intending to take action in the near future and have unsuccessfully taken action in the past year.
- 4. Action. In this stage individuals modify their behavior, experiences, and environment in order to overcome their problems.
- Maintenance. Individuals work to prevent relapse and consolidate the gains attained during action.
- 6. Termination. Individuals are longer tempted by inappropriate behaviors and have the confidence to cope with changes without fear of relapse. (Prochaska & Norcross, 2001).

SOC is not a linear process and has been conceptualized by Prochaska, DiClemente & Norcross (1992) as a, "spiral pattern of change" (p.1104) in which individuals may relapse or recycle through the stages in attempts to modify behavior. Prochaska, DiClemente & Norcross stated it is important to match the intervention with the individual's current stage as a method to enhance success. For example, in a smoking cessation program for cardiac patients, presenting intensive action and maintenance change strategies to individuals in the action stage was highly successful as the participants were in the action stage and ready for action (change). The same approach for participants identified as pre-contemplative or contemplative was unsuccessful. One additional strategy that reinforced behavior change in study participants was proactive treatment follow up with participants by treatment providers. Proactive treatment involved reaching out to patients and customizing clinical communications to the patients' stage of change that resulted in an 80% participation rate in clinical services (Prochaska, DiClemente & Norcross, 1992; Prochaska & Norcross, 2001). These results emphasize the importance of correctly matching interventions to the individual's stage of change (Prochaska, DiClemente & Norcross, 1992) and engaging in proactive treatment to encourage patient participation in clinical services.

While the SOC theory was derived from addiction research, it was recently used by Chan, Bezyak, & Lui (2013) as a framework to develop the Evidence-Based Practice in Vocational Rehabilitation (EBP-VR) survey to measure perceived self-efficacy, perceived benefits, perceived barriers and readiness to use EBP in practice. The EBP-VR Survey items included questions to determine the counselors stage of change in regards to EBP use: "I am interested in learning more about EBP", "I use EBP concepts in making decisions regarding services for my clients", and "I am using EBP my role as a rehabilitation counselor." These questions were intended to reflect various stages of change for rehabilitation counselors contemplating or putting EBP into action.

Results of the EBP-VR Survey of a four-state sample of counselors working in the statefederal VR program revealed the three highest rated items on EBP Stages of Change were: (a) I am interested in learning more about EBP, (b) I use best evidence for medical, psychological, and vocational interventions in my rehabilitation practice, and (c) I can see the value of EBP in vocational rehabilitation (Tansey, Bezyak, Chan, Leahy & Lui, 2014). The EBP-VR Survey responses to the EBP Stages of Change items reflect a range of responses from wanting to learn more about EBP to using medical, psychological and vocational interventions in practice. In terms of SOC theory, the responses included counselors in a pre-contemplative or contemplation stage to the action stage. The responses also indicate that EBP implementation is not a linear process and involves a complex interaction of an individual counselor's knowledge of EBP and particular stage of change in conjunction with the practice environment.

Eisenberger: Perceived Organizational Support (POS)

Eisenberger, Huntington, Hutchinson & Sowa (1986) define perceived organizational support (POS) as the employee developing global beliefs concerning the extent to which the organization values their contributions and care about their well-being. It is an attributional process similar to what people use generally to infer the commitment of others to social relationships. POS would be influenced by the frequency, extremity, and judged sincerity of statements of praise and approval (Blau, 1964). Other forms of support such as rewards or influence over an organization's policies or procedures could be perceived as organizational support and the organization's positive evaluation of the employee (Brinberg & Castell, 1982). Perceived support would raise an employee's expectancy that the organization would reward greater effort toward meeting organizational goals (effort-outcome expectancy). In later studies,

Eisenberger, Fasolo, Davis-LaMastro (1990) report a positive relationship of employees' perception of being valued and cared about by the organization with a) conscientiousness in carrying out conventional job responsibilities, b) expressed affective and calculative involvements in the organization, and c) innovation on behalf of the organization in the absence of anticipated direct reward or personal recognition. The POS theory is supportive of Bandura's (1986) self-efficacy theory in that individuals' perception of support is reflective of the subjective and normative determinants that influence individual attitudes and the inclination to engage in certain behaviors. However, POS theory relies primarily on individual perceptions of support as the determinant of motivation to engage or not engage in certain behaviors. The theory does not take into account the individual's belief in their ability to perform the behavior and if their behavior will lead to the desired outcome. Thus, in terms of counselor self-efficacy, POS fails to acknowledge an individual's belief to perform certain behavior(s) and how individual belief in their abilities may influence certain behaviors such as the use of EBP in order to enhance more effective outcomes. However, POS may be one possibility of explaining counselor perceptions regarding lack of organizational support for the use EBP in service delivery.

Roessler & Mullins: Interactional Psychological Model

Roessler & Mullins (1995) proposed using an interactional psychological model based on social cognitive theory for identifying and understanding the variables that influence the quality of rehabilitation counseling. The key components of the model included environment, self and behavior, each of which has an influence on the other. According to Bandura (1986), "behavior, cognitive and other personal factors, and environmental influences operate interactively as

determinants of each other" (p.23). These influences of behavior, personal factors and environmental factors have a bi-directional effect known as "reciprocal determinism".

Roessler & Mullins (1995) expanded on the concept of reciprocal determinism with a proposed application to rehabilitation counseling tasks and setting. Roessler & Mullins suggested an interaction between personal factors labeled Self (S) and the task demands labeled environment (E). They posited that the interaction of S x E variables provides insight into the behavioral intentions of counselors. Each interaction represents counselor construal of the demands of the environment as mediated by personal factors.

Roessler & Mulllins' (1995) interactional psychological model suggested a relationship between counselor self (S) x environment (E) and the effect on the quality of rehabilitation service provision. This model is somewhat similar to more recent empirical research that examined similar concepts. For example, in terms of the environment (E), Coordinating reflects a demand on time that counselors consistently report as a barrier to the use of EBP (Winch et al., 2005; O'Donnel, 2004; & Graham et al., 2013). Consult and Case Recording contain elements of organizational characteristics that inhibit the use of EBP such as lack of knowledge to properly assimilate evidence-based practice on the part of service providers, poor leadership, bureaucratic constraints, and a change-averse culture (Corrigan et al., 2001). Figure 4 below reflects the various interactions of the environment (E) and Self (S) factors.

Figure 4. *Quality Rehabilitation Counseling: Environment x Personal Factors Model*

	(Task Demands)			
Information gathered at the	Counseling	Coordinating	Consulting	Case
intersections from effective				Recording
counselors would increase	Building a	Selecting,	Advocating	Documenting
understanding of how	relationship	Organizing	for customer	eligibility,
intentions are formed and	and	and	with multiple	service
affect quality of responses to	Informing	monitoring	partners	needs,
rehabilitation counseling	customer of	services.		services, &
tasl Self – S	agency	Address		outcomes per
(Personal Factors)	policy.	vocational		agency
(Tersonal Factors)		needs.		policies.
Behavioral Beliefs				
(Response – Outcome				
Beliefs)				
Self-Efficacy Expectations				
Normative Beliefs				
(Supervisor)				
Normative Beliefs				
(Customer)				
Perceived Behavioral				
Control				
(Adequate Opportunities or				
Resources)				
Knowledge				
(Disability & Rehabilitation				
Counseling)				
Self-Appraised				
Competencies				
Intention ————————————————————————————————————				

Environment – E (Task Domands)

The Self (S) categories contain similar concepts related to recent research on counselor self-efficacy. In behavioral beliefs, rehabilitation counselors believe the application of evidence-based practice is necessary, useful and will lead to improved quality of VR service delivery (Beyzak et al., 2010). Tansey, Bezyak, Chan, Leahy & Lui (2014) noted that self-efficacy and outcome expectations for rehabilitation counselors from four state-federal VR agencies were

reported moderately high in the use of EBP. In terms of normative beliefs (supervisor), agency promotion of evidence-based practices was not widely encouraged with little supervisory support for the use of EBP in service delivery and making planning decisions (Graham et al., 2013; Tansey, Bezyak, Chan, Leahy & Lui, 2014). Rehabilitation counselors reported perceived behavioral control (adequate resources) such as access to professional journals and access to research databases in the work environment (Bezyak et al., 2010), with other evidence-based sources described as training, a wide variety and accessibility to resources and professional networking (Graham et al., 2013). Knowledge under the Self (S) category included study participants valuing research for practice, understood how to interpret research literature and apply the information in their job (Graham et al., 2013).

Conceptual Framework: Counselor Self-Efficacy and EBP Service Delivery Model

A conceptual framework for determining rehabilitation counselor self-efficacy using Roessler & Mullins' (1995) interactional psychological model based on Bandura's (1986) Social Cognitive Theory and Stages of Change (Prochaska & Norcorss, 2001) is presented. The conceptual framework is consistent with Roessler & Mullins' (1995) interactional psychological model based on social cognitive theory followed by the EBP Service Delivery Conceptual Model.

While Roessler & Mullins'(1995) interactional psychological model is viewed through the lens of the theory of reasoned action (Ajzen & Fishbein, 1980) and Bandura's (1989) social cognitive theory, it could be scaled down to a version that incorporates the concepts of selfefficacy and environment influence on evidence-based practices. The figure below reflects the reduced model.

Figure 5. Unidirectional Model of Self-Efficacy, EBP & VR Service Outcomes



Note: Adapted from Ajzen & Fishbein (1980)

The model above reflects a unidirectional model of rehabilitation counselor self-efficacy (RCSE) on evidence-based practices leading to VR service outcomes. While this model places emphasis upon counselor self-efficacy in the use of EBP, contextual factors that might influence EBP are absent. A proposed conceptual, interactional model reflecting the interaction between rehabilitation counselor self-efficacy and environmental factors is presented below.

The conceptual model reflects possible multiple interactions between counselor selfefficacy and environmental factors that influence the use of EBP in VR service delivery. This model includes Bandura's concept of reciprocal determinism reflecting the interaction between the individual and environment that influences behavior towards proposed outcomes. It also includes stages of change as an indicator of rehabilitation counselor readiness to use EBP. VR service outcomes was removed as the focus of this study is to determine the relationships between the multiple variables that contribute to the use of EBP in current practice, not how the variables lead to VR service outcomes. This conceptual model is designed to integrate current research on counselor self-efficacy in the use of EBP and environmental factors influencing use of EBP in service delivery practices.

Figure 6. Counselor Self-Efficacy & EBP Service Delivery Conceptual Model.



Summary

Rehabilitation counseling research has demonstrated that evidence-based practices are acknowledged for their potential to improve VR service delivery and enhance employment outcomes. What is missing from the research is an understanding of rehabilitation counselor self-efficacy to select and implement evidence-based practices into their current practice. Additionally, there has been limited exploration of context or environmental factors that inhibit or encourage evidence-based practice. In order to move forward in this area of research an examination of the interaction between counselor personal characteristics such as self-efficacy and work environmental factors is warranted.

Evidence-based practices in VR service delivery have been identified as necessary to provide ethical and research based interventions to people with disabilities as a method to enhance employment outcomes. EBP is required to demonstrate vocational rehabilitation services as effective in assisting individuals with disabilities achieve employment and justify resource allocation. Rehabilitation counseling researchers and practitioners must work together to close the gap between research and EBP in VR service delivery.

One approach to closing the research gap is to utilize the EBP-VR Survey (Chan, et al., 2013). This will facilitate an examination of the relationship between rehabilitation counselor self-efficacy as related to the development and use of EBP and environmental factors that support and/or introduce barriers to the use of EBP. It will also contribute to the rehabilitation counseling evidence-based research and literature by expanding upon the notion that EBP development and implementation is a complex, multi-dimensional process vs. a simple linear process of research to dissemination to practice. It will also provide a resource on which to base

future research on the implementation of EBP in rehabilitation counseling and VR service delivery.

CHAPTER 3

METHODS

The purpose of this study was to explore the relationship between rehabilitation counselor self-efficacy and work environment factors (perceived barriers) that promote the use of evidencebased practices in vocational rehabilitation service delivery. It is anticipated that the study findings will inform rehabilitation researchers, educators and practitioners in a variety of settings as to the barriers of implementation of EBP into VR service delivery. Rehabilitation researchers and educators may also use the findings to inform pre-service pedagogy regarding the need to prepare future rehabilitation counselors in the use of EBP.

This study used an internet-based survey to investigate Certified Rehabilitation Counselors' (CRCs) perceived self-efficacy, outcomes expectancy, barriers, and readiness to use evidence in current VR service delivery practices. Perceived self-efficacy was described as Rehabilitation Counselor EBP Self-Efficacy (RCSE) and perceived barriers are described as Environmental Factors (EF) that influence the use of evidence-based service delivery practices. The following practice settings were used: 1) the state-federal VR program, 2) community rehabilitation programs (CRO), and 3) private for profit/workers compensation rehabilitation settings. A final area of investigation was an exploration of differences between CRC demographic characteristics of respondents (i.e. gender, years of practice, practice setting, etc.) that influence Rehabilitation Counselor EBP Self-Efficacy (RCSE). The quantitative data was used to conduct descriptive as well as ex post facto analysis.

Research Questions

The purpose of this study is to investigate rehabilitation counselors' a) self-efficacy in their understanding and use of EBP, b) determine rehabilitation counselors' perceived benefits of EBP, c) explore perceived barriers to EBP use by practice setting, and d) if the Stages of Changes Theory could explain rehabilitation counselors' readiness to use EBP. The specific research questions of interest in this study are as follows:

- 1. What are rehabilitation counselor's perceived self-efficacy, outcomes expectancy, barriers, and readiness to use evidence in current VR service delivery practices?
- 2. What is the difference between practice settings and Rehabilitation Counselor EBP Self-Efficacy (RCSE) and Environmental Factors (EF) that influence the use of evidence-based service delivery practices: (a) State-Federal VR Program, (b) Community Rehabilitation Program (CRO), and (c) Private for Profit/Worker Compensation Rehabilitation?
- 3. Are there differences between CRC demographics (i.e. gender, years of practice, practice setting, etc.) that influence Rehabilitation Counselor EBP Self-Efficacy (RCSE)?

Participants

The population of interest selected for this study was Certified Rehabilitation Counselors (CRC). According to the Commission on Rehabilitation Counselor Certification (CRCC, 2015), there are approximately 17,000 CRCs in the United States. CRCs were chosen to be the population of interest in this study as they have received professional training from accredited rehabilitation counseling education programs, have passed the national certification examination and practice in a wide variety of settings. CRCs represent qualified professionals who provide

quality rehabilitation counseling and vocational rehabilitation services to people with disabilities. More importantly, CRCs are employed in a variety of settings including private/public agencies, for profit/nonprofit organizations, centers for independent living, and education institutions throughout the United States. The varied nature of this population was particularly useful for this study given the demographic data available to investigate whether work environment factors across different practice settings would yield different results of rehabilitation counselor selfefficacy in the use of evidence-based practices (Kuo, 2013).

Instrumentation

To measure CRC self-efficacy, perceived benefits, perceived barriers and readiness to use EBP, the Evidence-Based Practice in Vocational Rehabilitation Survey (EBP-VR Survey) was utilized. The EBP-VR Survey was developed by Chan, Bezyak, and Lui (2013) using social-cognitive theory (Bandura, 1986) and stages of change (SOC) theory (Prochaska, DiClemente, & Norcross, 1992) as a framework to develop the EBP-VR Survey to measure perceived self-efficacy, perceived benefits, perceived barriers, and readiness to use EBP in VR practice. They adopted some items from the EBP survey developed by Bezyak et al., (2010) and new items were written based on a comprehensive review of the rehabilitation literature on surveys of EBP among health professionals such as occupational therapists, physical therapists, and nurse practitioners. In addition, the survey was reviewed and critiqued by a panel of vocational rehabilitation experts including rehabilitation counselor educators, VR agency administrators, and VR counselors. The following is a description of each section, including the name of the instrument, definitions and sample questions.

Evidence-Based Practice in Vocational Rehabilitation Survey (EBP-VR Survey)

The EBP-VR Survey (Chan et al., 2013) is composed of 39 items and four subscales: (a) perceived self-efficacy with 9 items (e.g., "formulate appropriate clinical questions about the problems presented by the consumer;" "read and understand the best evidence information from systematic;" and "provide VR interventions that have the highest level of scientific evidence and support reviews/meta-analyses"); (b) perceived benefits with 10 items (e.g., "improve employment rates and employment quality for VR clients;" "empower consumers to exercise knowledgeable self-determination and truly informed choice;" and "protect clients from ineffective or harmful services"); (c) perceived barriers with 8 items (e.g., "the use of EBP places too much demand on my role as a rehabilitation counselor;" "I do not have sufficient training to incorporate EBP in my practice;" and "there is a lack of empirically validated VR interventions that I can use in my work as a VR counselor"); and (d) stages of change with 10 items (e.g., "I am interested in learning more about EBP;" "I use EBP concepts in making decisions regarding services for my clients;" and "I am using EBP in my role as a rehabilitation counselor") (Tansey et al., 2014)

Evaluation and Psychometric Properties of the EBP-VR Survey

Each item in the four subscales is rated on a 10-point Likert confidence rating scale. For the self-efficacy subscale the responses ranged from 0 (no confidence) to 9 (complete confidence). For the remaining three subscales of perceived benefits, perceived barriers and readiness, the responses ranged from 0 (strongly disagree) to 9 (strongly agree). The internal consistency reliability coefficients (Cronbach's alpha) for perceived benefits, perceived benefits, perceived barriers, and stages of change EBP were computed to be .94, .98, .71, and .86

respectively. To improve the reliability of the perceived barriers subscale, items in this subscale can be further divided into a personal barriers factor ($\alpha = .74$) and agency barriers factor ($\alpha = .77$) (Tansey et al., 2014).

Chan (personal correspondence, February 27, 2014) recommended that the four positive worded items (3, 4, 6 & 8) in the Barrier section of the EBP-VR Survey be changed to negative wording so that all eight items would refer to EBP barriers. Chan stated that study participants had some problems responding to the positive wording barrier items. Therefore, the wording for items 3, 4, 6 and 8 was changed to negative wording to reflect barriers to EBP for this study.

Variables

Demographic information was collected in the following areas to be used as variables: gender, age, years of work as a CRC, years of other rehabilitation related work, race/ethnicity, highest level of education, major area of study for highest degree, hold other certifications, hold counselor licensure, attended in-service EBP training, primary practice setting, client primary disability types, and caseload size. These questions were adapted from the EBP-VR Survey with the exception of client primary disability and caseload size. These last two were added by the researcher to explore the relationship between client primary disability characteristics, caseload size and EBP.

Data Collection

Procedures

Institutional clearance to complete the study involving human subjects was obtained through Michigan State University's Institutional Review Board (IRB). Following approval from the IRB, a request letter and the current study proposal was sent to the Council on Rehabilitation Counselor Certification (CRCC) research committee for approval of the study. The request letter was for CRCC to compile a 10% random sample for its 17,000 members.

After CRCC granted approval and the sample obtained, potential participants were contacted via email soliciting participation in the study. A consent form, invitation to participate in the study, and the link to the online survey was included in the email (Appendix A). A second request was sent one week following the initial email, along with a second email to remind CRCs who have not yet responded. A third and final reminder email was sent one week after the second reminder email was sent.

Due to the geographic dispersion of CRCs, the instrument was administered using an on line automated survey instrument "Qualtrics" to collect data from participants. Although demographic information was collected, no personal identifying information was included in the survey. Potential study participants accessing the instrument were provided with a web address and link provided in the emails. The instrument was available for a four week period and designed to prevent receiving multiple responses from the same study participant. Completion of the instrument is estimated between 10-15 minutes. At the completion of the instrument participants was offered the opportunity to obtain one free continuing education credit hour toward their CRCC continuing education units (CEU).

Pilot

A limited pilot of the EBP-VR Survey instrument was conducted. Seven non-CRC rehabilitation counselors familiar with EBP were provided access to the Survey through Qualtrics. The counselors were asked to test accessibility, functionality of the survey, appearance, clarity of instructions and access to the CRCC CEU Verification of Completion form for the one CEU awarded for survey completion. Alterations were made to the instrument according to suggestions mainly as to the selected instructions and formatting to increase clarity.

Dissemination

The instrument was disseminated through email via Qualtrics. The researcher obtained an initial randomly selected number of emails from CRCC totaling 2,200. Of this initial number five email addresses were determined to be unusable and not loaded into the Qualtrics member panel for email distribution of the survey. The invitation to participant in the survey was emailed to 2,195 individuals. Thirty one (31) emails bounced and were returned as undeliverable. A decision was made by the researcher to remove the 31 emails from the survey membership panel. Another four individuals contacted the investigator via email requesting they not be included in the study, i.e. two were retired, one was no longer working in VR, and one individual could not participate due to a family situation. These four individuals were also removed from the survey membership panel, leaving 2,160 participants available for the study.

Response Bias

Given the exploratory nature of the study, there was some expected response bias. The researcher made an effort to gather as large and varied sample of participants as possible and will report limitations of the study given the kind of participants who completed the survey.

Ethical Precautions

The EBP-VR Survey was configured as to not associate responses with study participants. All potential participants were informed about the purpose of the study, confidentiality, and how the data was used and disseminated. Potential participants were informed that they could withdrawal from the study at any time prior to the submission of data. Individuals were informed they may request information and/or contact the researcher with questions at any time or contact the MSU IRB with questions.

Data Analysis

Data analysis included several approaches to confirm the model and address the research questions. Prior to analysis, descriptive statistics were computed on the sample characteristics for the following categorical and continuous variables: a) gender, b) age, c) years of work as a CRC, d) years of other rehabilitation related work, e) race/ethnicity, f) highest level of education, g) major area of study for highest degree, h) hold other certifications, i) hold counselor licensure, j) attended in-service EBP training, k) primary practice setting, l) client primary disability types, and m) caseload size. Data was also examined for relationships between and within factors.

Prior to addressing the research questions, an exploratory factor analysis (EFA) of the EBP-VR Survey was used to determine the number of components. This included univariate and

correlational statistical analyses used to analyze and interpret the data. Following a review and cleansing of the data, an EFA was conducted. An EFA was performed to determine if the items on the EBP-VR Survey measured the theoretical constructs of interest and if the items could be better explained by fewer components (factors) that held common item interrelationships and significant loadings (Tabachnick & Fidell, 2013).

Subject to item ratios acceptable for EFA vary and there is no one ratio that will work in all cases (Costello & Osborn, 2005). Costello & Osborne (2005) reviewed 303 factor analysis studies, finding that most researchers (62.9%) performed analysis with subject to item ratios of 10:1 or less. Given the sample size for this study (n=318), the subject to item ratio of 10:1 was met.

Strict rules regarding sample size for EFA have mostly disappeared, with studies revealing that sample size is partly determined by the nature of the data (Fabrigar, Wegener, MacCallum, & Strahan, 1999; MacCallum, Widaman, Zhang, & Hong, 1999). While no firm guidelines for EFA sample size adequacy exist, Comfrey & Lee (1992) suggest adequacy of sample size might be evaluated approximately on the following scale: 50 –very poor, 100- poor, 200 – fair, 300 – good, 500 – very good, 1,000 or more excellent. For this study, a good sample size (n=318) was obtained.

The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity were computed to test adequacy of sample size and inter-item correlations for factor analysis (Tabachink & Fidell, 2013). To establish reliability of the EBP-VR Survey, the Cronbach alpha statistic was used to estimate the internal consistency of the items (Pallant, 2010) relative to the concepts that were measured.

Defining the sample of the population of CRCs, descriptive statistics, frequencies, and percentages were computed for general participant demographic information (i.e. gender, age, race/ethnicity), professional characteristics (i.e. years of experience as a CRC, highest education level, major study area, case load size) and practice setting (i.e. state-federal VR program, community rehabilitation organization, private for profit/workers compensation, and other practice settings). This data was used to make comparisons among the sample and population from which the sample was obtained to provide an estimate of this study's representativeness of the population (i.e. CRCs in the United States).

A priori power analysis was conducted to pre-determined to detect minimum a medium (.15) to larger (.35) effect size at power =.80, with an alpha level of .05 (Cohen, 1992). A minimum sample of 327 was needed to test if significant differences existed between practice settings of counselor self-efficacy, perceived benefits, perceived barriers, and readiness.

To answer research question one, descriptive statistics, percentages, and frequency tables were used to summarize the demographic characteristics of the sample. Mean and standard deviation scores of the CRCs self-efficacy in the use of EBP, perceived benefits of EBP, perceived barriers to EBP. This data was compiled on four practice settings; a) state-federal VR program, b) community rehabilitation organizations (CRO), c) private for profit/workers compensation, and d) "other" practice settings as reported by the participants.

To answer research question two, a one-way ANOVA was used to compare the group mean differences of self-efficacy and perceived barriers relative to practice settings of the statefederal VR program, CRO and private for profit/workers compensation practice. The "other" practice setting was removed from the analysis as this variable was confounding containing over sixty different reported practice settings. These settings ranged from hospital settings, high schools, churches, corrections facilities, corporate offices, and Tribal One Stop settings. The "other" responses also contained no practice setting responses such as being retired, unemployed, non-profit consulting firm, and volunteer advocate. Given the very diverse nature of the "other" practice setting, it was dropped from analysis for research question two. The three primary practice settings of state-federal VR, CRO and private for profit/workers compensation practice settings were the focus of the analysis.

To answer research question three, a simultaneous multiple regression was used to determine predictors of Rehabilitation Counselor Self-Efficacy (RCSE) based on CRC demographics (i.e. gender, years of practice, practice- setting, etc.). The practice settings used in the regression equation were the state-federal VR program, CRO and private for profit/workers compensation practice settings. The "other" practice setting was not included in the multiple regression analysis as discussed above.

Limitations of the Study

Limitations associated with this study include the use of self-report questionnaires, sample size and response rate, and researcher perception of CRC knowledge base of EBP. Participant response bias may have influenced how study participants responded to the survey items. Given the perceived importance of the study topic, evidence-based practices in VR service delivery, study participants may have provided responses to confirm the researcher's hypotheses or answered the questions in a socially desirable way (i.e., a CRC should be knowledgeable of EBP in VR service delivery) (Heppner, et al., 1999).

Sample size may also be a limitation based on survey response frequency. Current trends in survey research reflect that refusal and non-response rates have doubled for all surveys, regardless of type during the past decade (Birnbaum, 2004; Sheehan, 2001; Survey Monkey, 2008; Tourangeau, 2004). Heppner, Kivlingham, and Wampold (1992) reported that survey research is often published with less than 40% response rates. The overall decline in e-mail survey response rates has been attributed to the number of people who do not read their e-mail (Birnbaum, 2004; Welker, 2001).

Finally, a primary assumption of this study depended upon the validity of CRC selfreport and knowledge of EBP, their perceived benefits of EBP, perceived barriers to EBP and readiness to use EBP. The degree to which these assumptions were accurate of CRC EBP concepts and practices is unknown.

Summary

A random sample of CRCs for participation was selected for this study from CRCC membership data base. The selected CRCs were invited to complete the EBP-VR Survey via email in order to determine rehabilitation counselor self-efficacy, perceived benefits, perceived barriers and readiness to use EBP. Data was analyzed to include a factor analysis of the EBP-VR Survey to validate the constructs being measured, rehabilitation counselor self-efficacy, perceived benefits, perceived barriers and readiness to use EBP. One-way ANOVA was used to explore differences in counselor self-efficacy and barriers between practice settings, and simultaneous multiple regression was used to determine predictors of counselor self-efficacy based on CRC demographics.

Chapter 4

RESULTS

The purpose of this study was to explore the relationship between rehabilitation counselor self-efficacy and work environment factors that influence the use of EBP in VR service delivery using Bandura's (1986) Social Cognitive Theory and Prochasha & Norcross' (1992) Stages of Change Theory. The results provide a basis of comparison for CRC a) self-efficacy in the use of EBP, b) perceived benefits of EBP, c) perceived barriers to use of EBP in practice, and d) readiness to use EBP. These four concepts were measured by four subscales comprising the EBP-VR Survey.

This chapter will address the characteristics of the participants, how missing data was handled, results of an exploratory factor analysis (EFA), and data analysis to address each research question. The IBM Statistical Package for the Social Sciences version 22 (SPSS, 2013) and Microsoft Excel were used to conduct all data analyses for this study.

Participants

The target population for this study were Certified Rehabilitation Counselors (CRC). CRCs were chosen to be the population of interest in this study as they have received professional training from accredited rehabilitation counseling education programs, have passed the national certification examination and practice in a wide variety of settings. CRCs represent qualified professionals who provide quality rehabilitation counseling and vocational rehabilitation services to people with disabilities. More importantly, CRCs are employed in a variety of settings including private/public agencies, for profit/nonprofit organizations, centers

for independent living, and education institutions throughout the United States. The varied nature of this population was particularly useful for this study given the demographic data available to investigate whether work environment factors across different practice settings would yield different results of rehabilitation counselor self-efficacy in the use of evidence-based practices (Kuo, 2013).

Response Rate

Of the initial 2,200 email addresses obtained from CRCC, five emails were determined to be unavailable, leaving 2,195 email addresses who were sent an invitation to participate in the survey. Of the 2,195 emails, 31 failed to deliver and four individuals declined to participate in the study, leaving 2,160 available to participate. The researcher anticipated a 20% response rate from the 2,160 CRCs contacted via email. While 421 individuals started the survey (19%), only 324 surveys (15%) were determined to have completed the survey per Qualtrics software.

A review of the 421 surveys that were started revealed a 91% response rate to the demographic section of the survey. Of the four subscales, 83% provided responses on the self-efficacy subscale, 80% provided responses on the perceived benefits subscale, 78% provided responses on the perceived barriers subscale, and 78% provided responses to the readiness subscale. These percentages reflected a high response rate to the demographic section of the survey, followed by a decreased response rate to the four survey subscales. While specifics as to the decreased response rate on the four subscales are not know, the researcher feels the number of subscale items in combination with the 10-point Likert scales for each item, may have contributed to participant response fatigue. A review of the four subscale responses reflected subscale partial completion or subscales without any responses. Participants may have started

the survey, were interrupted and failed to return to complete the study, or may have decided not to complete the survey given the number of items and responses required.

Participant Demographics

Of the CRCs (n=318) who provided demographic characteristics, 78.5% (n=249) were female and 21.5% (n=68) were male. For race/ethnicity, 77.9% were Caucasian (n=247), 10.1% were African American (n=32), 5.7% were Hispanic/Latino American (n=18), 3.2% were Asian American (n=10), .65 were American Indian/Native American (n=2), with 2.5% reporting other (n=8). In terms of gender and race/ethnicity, the study sample is comparable to the race/ethnicity demographics of the CRCC population. Table 2 is a comparison of the study sample vs the CRCC population.

Gender & Race/Ethnicity	Study Sample %	CRCC Population %
Male	21.5	26.2
Female	78.5	73.8
White	77.9	78.1
African American	10.1	10.4
Hispanic/Latino	5.7	4.5
Asian American	3.2	2.4
American Indian/Native American	.65	.53
Other	2.5	.06

Study Sample Gender & Race/Ethnicity vs. CRCC Population Gender & Race/Ethnicity

Note: Study Sample n=318

Table 2.

The mean age of the participants was 46.3 years with a range of 25 years old to 77 years old. In terms of age, the study sample (n=49) contained almost twice as many CRCs under 30 years of age. Table 3 below is a comparison of the participants and CRCC population.

Age Range	Study Sample %	CRCC Population %		
Under 30	15.4	8.0		
30-39	19.5	19.1		
40-49	22.3	22.3		
50-59	22.3	25.4		
60+	20.4	25.1		

Table 3.Study Sample Age Range vs. CRCC Population Age Ranges

Note: Study Sample: n=318

Years of work experience as a CRC had a mean of 11.2 years with a range of 0 (a newly certified rehabilitation counselor with no work experience at the time of the study) to 40 years work experience as a CRC. Of interest was the large number of CRCs (n=125) with under five years work experience as a CRC. This was followed by CRCs (n=66) with six to ten years of work experience. Table 4 below shows CRC years of work experience.

CRC Years of			
Work Experience	Frequency	Percentage %	
0.5	125	30.6	
6-10	66	20.9	
11-15	39	12.3	
16-20	23	7.3	
21-25	24	7.6	
26-30	21	6.6	
31-35	12	3.8	
36-40	6	1.9	
Total	316	100	

Table 4.Study Sample CRC Years of Work Experience

Note: Study Sample: n=316. Two participants did not respond.

In terms of practice setting, the majority of the study participants worked in the Statefederal VR program 43.7% (n=139), followed by the Private for Profit/Workers Compensation settings 18.9% (n=60), other practice setting 29.6% (n=94), and community rehabilitation organization 7.9% (n=25). Table 19 in Appendix B contains the study participant practice settings. The study sample was similar to the CRCC population in terms of the number of participants practicing in CROs and in the private sector. There was a difference in terms of more study participants practicing in the state-federal VR program and less in the private sector as compared to the CRCC population. Table 5 below is a comparison of participant practice setting against the CRCC population practice settings.

Table 5.

Study Sample Practice Settings vs. CRCC Population Practice Settings				
Study Samples	Sample %	CRCC %		
139	43.7	28.2		
ion				
25	7.9	5.8		
ers				
60	18.9	18.2		
94	29.6	47.8		
	Settings vs. CRCC P Study Samples 139 ion 25 ers 60 94	Settings vs. CRCC Population PracticStudy SamplesSample %13943.7ion25257.9ers609429.6		

Note: Two participants did not provide responses (n=316).

Table 20 participant highest education level and Table 21 participant major areas of study are contained in Appendix C. The majority of participants held a master's degree in rehabilitation counseling 92.3% (n=289), followed by a doctorate degree 6.1% (n=19), and bachelor's degree 1.6% (n=5). The major area of study was rehabilitation counseling 78% (n=248), followed by other counseling specialty 7.5% (n=24).

The mean caseload size was 65 cases with a range of 0 cases to 965. There were two extremely high case load numbers observed in the caseload size data of 965 and 635. The caseload size of 965 was related to the participant's reported practice setting as a College Disability Office. The number may represent the total number of students being served by the College Disability Office. For caseload size 635, the participant's reported practice setting is the County Board of Developmental Disabilities. The number may represent the number of clients being served by the county board. Both values appear to be legitimate representations of the participants' practice settings and were retained in the sample.

The participants also reported other certifications and licenses in addition to having the CRC designation. Other credentials include Certified Vocational Evaluator (n=4; 1.3%), Certified Case Manager (n=17; 5.3%), Licensed Professional Counselor (N=59; 18.6%), Limited License Professional Counselor (n=6; 1.9%).

Missing Data

Multiple approaches exist to handle missing data, ranging from case deletion to imputation techniques to replace missing values. For this study two approaches were used to address missing data, case deletion and Expectation Maximization (EM). Case deletion will be discussed first, followed by EM.

As described earlier, of the 421 surveys that were started, the majority of participants completed the demographic section (91%). This was followed by a decreased response across the four subscales: a) self-efficacy subscale (83%), b) perceived benefits subscale (80%), c) perceived barriers subscale (78%), and d) readiness (78%). When the EBP-VR Survey closed, the data was sorted using Qualtrics to determine the number of completed surveys. Qualtrics assigns 1 for completed survey and 0 for non-completed surveys. All surveys were downloaded into Excel and sorted by completed (1) vs. non-completed (0) surveys. A review of the 421 surveys revealed 23% (n=97) were missing values across the four subscales. The missing values ranged from one up to 8 to12 missing values indicating one or two subscales were not completed. Given the large amounts of missing data on the subscales, these cases were removed from the analysis, leaving a total of 324 cases.

A further examination of the 324 completed survey revealed 114 missing values (29%) on the EBP-VR Survey scale. The 324 completed surveys were uploaded into SPSS and a missing value search was conducted, finding six cases with between 2 to 20 missing values on the subscales. For example, one case was determined to have 20 missing values on the Perceived Barriers subscale (8) and Readiness subscale (12). In total, the six identified cases accounted for 58% (66) of the missing values on the EBP-VR Survey scales. In an effort to conserve as many cases as possible, the researcher chose to remove only these six cases in order to maintain a sample above 300 for exploratory factor analysis (EFA). When the six cases were removed from the data, the percentage of missing values on the EBP VR scales decreased to 12%. This resulted in a sample of n=318 for data analysis.

To replace the missing values remaining in the EBP VR subscales, Expectation Maximization (EM) was used. EM is considered an effective technique used to in data analysis to manage missing data (Schafer, 1997) as it overcomes some of the limitations of other techniques, such as mean substitution or regression substitution. EM is also considered a valid technique because it produces unbiased parameter estimates when data are missing completely random at random (MCAR) and less biased parameters when data are missing at random, called ignorable response (MAR) or systematic (Acock, 1997). EM was used to determine whether data MCAR or MAR. Using SPSS missing values option, three of the subscales (Self-Efficacy, Perceived Barriers & Readiness) were determined to have values MCAR. The Perceived Benefits scale was determined to have values missing at random MAR.

Exploratory Factor Analysis of the EBP-VR Survey

An exploratory factor analysis (EFA) was performed to determine if items on the EBP-VR Survey measured the theoretical constructs of interest and if the items could be better explained by fewer components or factors that held common item interrelationships and significant loadings for each of the respective scales; self-efficacy, perceived benefits, perceived barriers, and readiness. It was anticipated that the statistical analysis would take place on the retained factor structure if it could be meaningfully generated and interpreted. Before the EFA was conducted each EBP-VR subscale was analyzed for normality and inter-item reliability.

EBP-VR Survey Scales

Prior to performing the EFA, each subscale of the EBP-VR Survey was analyzed for means, standard deviations and scale reliability (Cronbach's alpha). The results for the four subscales are as follows: a) self-efficacy subscale: average score for this subscale was 7.71 (SD= 1.54) indicating a moderately highly level of perceived self-efficacy related to EBP. Cronbach's alpha was .934 suggesting very good internal consistency reliability for this scale with this sample, b) perceived benefits subscale: average score for this subscale was 8.04 (SD= 1.48) indicating a moderately highly level of perceived benefits of EBP. Cronbach's alpha was .964 suggesting very good internal consistency reliability for this scale with this sample, c) perceived barriers subscale: average score for this subscale was 4.60 (SD=1.74) indicating a moderate level of perceived barriers to EBP. Cronbach's alpha .878 suggesting very good internal consistency reliability for this scale score for this subscale was 6.10 (SD=1.17) indicating a moderate level of readiness to use EBP. Cronbach's alpha was .815 suggesting good internal consistency reliability for this scale with this sample.

EFA: Self-Efficacy, Perceived Benefits, Perceived Barriers and Readiness Scales

A principle component method was used for factor analysis to extract components that could explain the item interrelationships among the 39 items on the EBP-VR Survey. The Kaiser-Meyer-Olkin (KMO) measure confirmed the adequacy of the sample size for the factor analysis, KMO = .921 (Tabachink & Fidell, 2013) and the Bartlett's test of sphericity χ^2 (561) = 8501.90, p < .001, indicated that inter-item correlations were substantial and adequate.

Using Kasier's eigenvalue criterion >1 (Pallant, 2010), six factors were initially extracted for analysis. An analysis of the scree plot was used to determine the number of factors to be retained (Tabachink & Fidell, 2013). The scree plot analysis reflected between three to six factors could be retained. An orthogonal rotation (varimax) method was used to assist with making meaningful interpretations of both the six factor and the factor extraction set at three.

While the six factor solution using Kaiser's eigenvalue criterion of greater than one explained 68.03% of the variance, a closer review of the individual item loadings revealed that the items on the readiness scale dispersed or loaded on the three other scales of self-efficacy, perceived benefits, and perceived barriers. Table 6 below shows how the readiness items loaded on to the other scales.

EBP-VR Survey Item Loading Across Factors				
Factors	Scale Item Distribution	Readiness Scale Items		
Factor 1: Perceived Benefits	Benefit Items: 13	— 3 Items on Benefits		
Factor 2: Self-Efficacy	Self-Efficacy Items: 14 🖛	— 6 Items on Self-Efficacy		
Factor 3: Perceived Barriers	Barrier Items: 10	- 2 Items on Barriers		
Note: One of the readiness scale items had no loading on any factors				

Table 6.

Note: One of the readiness scale items had no loading on any factors.

A careful inspection of all 12 readiness scale items was conducted as to possible explanations for why the readiness subscale items loaded on the other three scales. It was noted that one scale item most likely measured a barrier to EBP such as the readiness scale item, "I do not believe EBP has any practical value in vocational rehabilitation", while another readiness scale item made the assumption that rehabilitation counselors enjoy reading empirical research, "I enjoy reading empirical research articles in the rehabilitation, health, psychology fields". The remaining readiness scale items did not specifically explore rehabilitation counselor readiness or stage of change (i.e. ambivalence towards using EBP vs. action/implementation of EBP). Rather the remaining items relate more to self-efficacy, "I use best evidence medical, psychological, and vocational interventions in my rehabilitation practice", or benefits, "I can see the value of EBP in vocational rehabilitation". Based on the ambiguous nature of the readiness scale items, a three factor solution was chosen.

A principle component analysis using a varimax rotation and three factor solution was used to make meaningful interpretations. Coefficients values for all items were set at .40, since this value been used as having a loading of interpretive value (Field, 2009). Stevens (2002; as cited in Field, 2009) suggested that by squaring r (e.g. .40), approximately 16% of the variance of a given factor can be explained by such an item loading. The three extracted factors are described below which explained 55.13% of the variance. Table 7 below displays the total variance explained by the three factor solution containing all EBP-VR Survey items. Table 8 is the rotated component matrix loadings for all three scales.

Table 7.

Total variance Explained by the Three Component Solution of Mi EBT VK hens				
	Initial Eigenvalues	Extraction	Rotation	
	Total - % Var-Cum %	Total - % Var-Cum%	Total	
Perceived Benefits	13.521 34.669 34.669	13.521 34.669 34.669	8.885	
Self-Efficacy	4.556 11.683 46.351	4.556 11.683 46.351	7.233	
Perceived Barriers	3.423 8.776 55.127	3.423 8.776 55.127	5.381	

Total Variance Explained by the Three-Component Solution of All EBP-VR Items

Table 8.

Rotated Component Matrix of Perceived Benefits, Self-Efficacy and Perceived Barriers Scale Items

Rotated Factor Loadings	1	2	3	
Increase the probability of identifying best evidence	.876			
Improve working relationship (working alliance)	.858			
Improve employment rates and employment	.854			
Improve psychosocial outcomes for VR clients	.853			
Empower clients to exercise knowledgeable	.849			
Help identify the most effective and efficient	.846			
Improve client satisfaction	.823			
Improve efficiency in utilization	.805			
Protect clients from ineffective or harmful services	.775			
Help keep me abreast with current best evidence	.758			
EBP has the potential to help improve	.650			
I can see the value of EBP in vocational rehabilitation	.624			
I am interested in learning more about EBP	.459			
Provide psychosocial interventions		.819		
Use current best evidence in making decisions		.816		
Read and understand the best evidence information		.801		
Critically evaluate the validity and generalizability		.801		
Provide VR interventions that have the highest level		.788		
Understand basic concepts of rehabilitation research		.754		
Search the research databases and search engines		.751		
I take research findings into consideration		.720		
I use EBP concepts in making decisions		.577		
I use best evidence medical, psychological		.517		
Use an evidence-based practice approach		.501		
I use the internet and academic databases		.500		
I am using EBP in my role as a rehabilitation counselor		.495		
I have completed in-service training		.407		
There is a lack of support and encouragement			.761	
There is a lack of collective support			.740	
I do not have time to incorporate EBP in my work			.707	
My agency does not have the infrastructure and interest			.706	
There are no supervisors and counselors			.663	
Table 8. (cont'd)

Rotated Factor Loadings	1	2	3	
There is a lack of empirically validated VR interventions			.648	
The use of EBP places too much demand on my role			.642	
I do not have sufficient training to incorporate EBP			.633	
I do not believe EBP has any practical value			.467	
Use of treatment/interventions decisions based on clinical exper	ience		.451	
Note: 1 = Perceived Benefits, 2 = Self-Efficacy, 3 = Percei	ived Ba	rriers		

Factor 1: Perceived Benefits

This factor consists of 13 items measuring rehabilitation counselors' perceived benefits of EBP in terms of providing best interventions, improving the working alliance, and improving client employment outcomes. This is consistent with Graham et al. (2013) who reported rehabilitation counselors value research for practice, understood how to interpret research literature and apply the information in their job. The mean inter-item correlation of .62 and Cronbach's alpha was .954 suggesting very good internal consistency reliability for this scale with this sample. The average score for this subscale was 7.97 (SD= 1.72) indicating a moderately highly level of perceived benefits of EBP.

Factor 2: Rehabilitation Counselor Self-Efficacy

This factor consists of 14 items that measure rehabilitation counselors' confidence in their ability to select assessment and interventions for clients based on the best scientific evidence in their role as a rehabilitation counselor. According to Bandura's (1982) social cognitive theory, an individual's perceptions impact their behaviors and actions. For example, if a counselor believes they can provide an effective service to their customer(s) (i.e., perceived competency to deliver evidence-based practices), their thoughts and behaviors are shaped by the perceived competency and they are likely to provide the effective service to their customers. The mean inter-item correlation of .492 and Cronbach's alpha was .926 suggesting very good internal consistency reliability for this scale with this sample. The average score for this subscale was 7.28 (SD= 2.03) indicating a moderately highly level of perceived self-efficacy related to EBP.

Factor 3: Perceived Barriers

This factor consists of 10 items that measured rehabilitation counselors perceived barriers to the use of EBP in practice. Winch et al. (2005) noted professionals often point to limited motivation and interest, poor confidence, negative attitudes, and limited understanding of the value of research as barriers to evidence-based practice. Both organizational and individual characteristics such as lack of knowledge to properly assimilate evidence-based practice on the part of service providers, poor leadership, bureaucratic constraints, and a change-averse culture (Corrigan, Steiner, McCracken, Blaser, & Barr, 2001). The mean inter-item correlation of .404 and Cronbach's alpha .873 suggesting very good internal consistency reliability for this scale with this sample. The average score for this subscale was 4.46 (SD=2.12) indicating a moderate level of perceived barriers to EBP.

As shown in Table 9, study participants rated perceived benefits factor as being important with a mean of 7.97 (SD = 1.72). The highest rated perceived benefit item was, "Increasing the probability of identifying best evidence VR interventions consistent with the values and needs of VR clients" with a mean of 8.06 (SD=1.63). The lowest item on the perceived benefits factor was "EBP has the potential to help improve the effectiveness of VR service delivery practices" with a mean 7.37 (SD=1.68).

The self-efficacy factor had a mean of 7.28 (SD=2.03) and the highest rated item was "Use an evidence-based practice approach (e.g., motivational interviewing) in the professional practice of rehabilitation counseling" with a mean of 8.01 (SD=1.81) indicating high confidence in their ability to provide such interventions. There were two low items on the self-efficacy factor, "I am using EBP in my role as a rehabilitation counselor" with a mean of 6.25 (SD=2.38), and, "I use the internet and academic databases to search for systematic review articles to help me select promising practices that are helpful to my clients" with a mean of 6.26 (SD=2.62).

The perceived barriers factor had a mean of 4.46 (SD=2.12) with the highest item as "There are no supervisors and counselors who are experienced in EBP in my agency that I can talk to" with a mean of 5.33 (SD=2.68). The item with the lowest was "I do not believe EBP has any practical value in vocational rehabilitation" with a mean of 2.80 (SD=1.94).

Table 9.

Mean and Standard Deviation for Perceived Benefits, Self-Efficacy and Perceived Barriers Factors Benefits Self-Efficacy Barriers

	201101105		j			•=•
	Μ	SD	Μ	SD	Μ	SD
EBP VR	7.97	1.72	7.28	2.03	4.46	2.12
Factor 1: Perceived Benefits						
Increase the probability of identifying best	8.06	1.63				
Improve working relationship (working alliance)	8.04	1.69				
Improve employment rates and employment	7.98	1.71				
Improve psychosocial outcomes for VR clients	8.04	1.64				
Empower clients to exercise knowledgeable	8.14	1.66				
Help identify the most effective and efficient	8.02	1.70				
Improve client satisfaction	7.84	1.83				
Improve efficiency in utilization	7.78	1.83				
Protect clients from ineffective or harmful	8.07	1.82				
Help keep me abreast with current best evidence	8.37	1.50				
EBP has the potential to help improve	7.37	1.68				
I can see the value of EBP in vocational	7.78	1.65				
I am interested in learning more about EBP	8.04	1.76				

Table 9. (cont'd)

]	Benefits		Self-Efficacy		Barr	riers
	Μ	SD	Μ	SD	Μ	SD
EBP VR	7.97	1.72	7.28	2.03	4.46	2.12
Factor 2: Counselor Self-Efficacy						
Use current best evidence in making decisions			7.98	1.71		
Provide psychosocial interventions			7.69	1.90		
Read and understand the best evidence information			7.54	1.95		
Critically evaluate the validity and generalizability			7.41	2.02		
Provide VR interventions that have the highest level			7.70	1.83		
Use an evidence-based practice approach			8.01	1.81		
Understand basic concepts of rehabilitation research			7.20	2.35		
Search the research databases and search engines			7.20	2.35		
I take research findings into consideration			6.80	2.04		
I use EBP concepts in making decisions			6.91	2.01		
I use best evidence medical, psychological			7.30	1.78		
I use the internet and academic databases			6.25	2.62		
I am using EBP in my role as a rehabilitation counse	elor		6.25	2.38		
I have completed in-service training			6.50	2.64		
Factor 3: Barriers to EBP						
There is a lack of support and encouragement					4.68	2.44
There is a lack of collective support					4.99	2.29
I do not have time to incorporate EBP in my work					3.90	2.13
My agency does not have the infrastructure and inte	erest				4.31	2.59
There are no supervisors and counselors who are experienced					5.33	2.68
There is a lack of empirically validated VR interven	ntions				4.46	2.08
The use of EBP places too much demand on my rol	e				4.12	2.10
I do not have sufficient training to incorporate EBP					5.00	2.61
I do not believe EBP has any practical value					2.80	1.94
The use of treatment/interventions decisions based of	on cli	nical e	xperience	•	5.02	1.73

Supplementary Data Analysis of EBP-VR Survey

As demonstrated by the EFA, items from the readiness subscale loaded on to the other three factors of perceived benefits, self-efficacy and perceive barriers. A subsequent EFAs were conducted to compare the three subscales of perceived benefits, self-efficacy and perceived barriers without the readiness subscale items. A principle component analysis using a varimax rotation and three factor solution was used to make meaningful interpretations for perceived benefits, self-efficacy and perceived barriers. Coefficients values for all items were set at .40, since this value been used as having a loading of interpretive value (Field, 2009). Stevens (2002; as cited in Field, 2009) suggested that by squaring r (e.g. .40), approximately 16% of the variance of a given factor can be explained by such an item loading. The three extracted factors are described below which explained 65.15% of the variance. Table 10 below displays the variance explained by the three factor solution of perceived benefits, self-efficacy and perceived barriers. Table 11displays the rotated matrix of components.

Table 10.

Total Variance Explained by Three-Component Solution of Perceived Benefits, Self-Efficacy and Perceived Barriers

	Initial Eigenvalues	Extraction	Rotation
	Total - % Var-Cum %	Total - % Var-Cum%	Total
Perceived Benefits	10.339 38.292 38.292	10.339 38.292 38.292	7.619
Self-Efficacy	4.190 15.517 15.517	4.190 15.517 53.809	5.561
Perceived Barriers	3.062 11.341 11.341	3.062 11.341 65.150	4.411

Table 11.

	1	2	3
Improve employment rates and outcomes	.862		
Improve psychosocial outcomes	.866		
Improve working relationship	.878		
Improve client satisfaction	.857		
Help identify the most effective VR interventions	.865		
Increase the probability of identifying best	.887		
Help keep me abreast with current evidence	.757		
Empower clients to exercise knowledgeable	.876		
Improve efficiency in utilization of resources	.834		
Protect clients from ineffective or harm services	.792		
Search the research databases		.795	
Understand basic concepts of research		.795	
Critically evaluate the validity and generalizability		.801	
Read and understand the best evidence information	1	.816	
Use and evidence-based practice approach		.748	
Provide psychosocial interventions w/ highest leve	1	.819	
Use current best evidence in making decisions		.796	
The use of EBP places too much demand			.607
I do not have time to incorporate EBP			
There is a lack of collective support (colleagues & agency)			
There is a lack of support & encouragement (senio	r mgt.)		.809
I do not have sufficient training	-		.670
My agency does not have the infrastructure			.773

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Note: 1 = Perceived Benefits, 2 = Self-Efficacy, 3 = Perceived Barriers

There are no supervisors & counselors who are experienced in EBP

There is a lack of empirically validated VR interventions

Summary

The results of the PCA of the perceived benefits, self-efficacy and perceived barriers subscale items were consist with the full PCA with all EBP-VR Survey subscales. The full PCA on all EBP-VR Survey subscales accounted for 55.13% of the total variance, while the PCA on the perceived benefits, self-efficacy and perceived barriers subscales accounted for 65.15% of

.682

.717

the total variance. Both PCAs resulted in the same component order of perceived benefits, selfefficacy and perceived barriers.

It should be noted that one self-efficacy item, "Formulate appropriate clinical questions about the problems presented by the consumer" did not load on either the full PCA containing all EBP-VR Survey items, nor the PCA containing items from the EBP-VR Survey subscales of perceived benefits, self-efficacy and perceived barriers. While study participants responded favorably to this item in the original survey with a mean 7.95 (SD=1.78), it is unknown why this particular item did not have any component loading in both PCAs. This item could be removed from the subscale. However, the conceptual basis for the item, "Formulate appropriate clinical questions…", is a critical first step for EBP development and implementation. This item should be included after consideration is given to new item wording and pilot testing.

The results from the PCA of three EBP-VR Survey subscales of perceived benefits, selfefficacy and perceived barriers (minus the one self-efficacy item above) reflect and measure the intended concepts of rehabilitation counselor perceived benefits of EBP, rehabilitation counselor self-efficacy in the use of EBP, and rehabilitation counselor perceived barriers to EBP use at the organizational, management and practitioner levels. These three subscales could be used for future research in exploring rehabilitation counselor perceived benefits of EBP, rehabilitation counselor self-efficacy in EBP use and perceived barriers to EBP interventions.

As described earlier, a careful review of all 12 readiness scale items was conducted by the researcher as to possible explanations for why the readiness subscale items loaded on the other three scales. The researcher concluded that the readiness subscale items may have inadvertently measured concepts associated with the perceived benefits, self-efficacy and perceived barriers subscales. While the intent of the readiness subscale was to specifically explore rehabilitation counselor readiness or stage of change (i.e. ambivalence towards using EBP vs. action/implementation of EBP), this was not the case with this particular sample. Given the sample for this study consistent of participants with advanced pre-service training from CORE accredited rehabilitation counseling programs, and who also obtain a national certification, stages of change theory may not have been applicable to this study sample. Stages of change theory may be more applicable to recent rehabilitation counseling program graduates and/or new CRCs in terms of measuring their readiness to engage in EBP interventions and practice with clients. This could be the basis for future research with novice rehabilitation counselor readiness to use EBP, especially in light of the large number CRCs (n=125; 39.6%) with less than five years of work experience that participated in this study.

Future research involving the EBP-VR Survey should be limited to the three subscales of perceived benefits, self-efficacy and perceived barriers. A similar study in the future using the three subscales to conduct an initial PCA followed by a confirmatory factor analysis (CFA) could further validate the instrument of use in measuring rehabilitation counselors perceived benefits of EBP, self-efficacy in the use of EBP, and perceived barriers to EBP interventions.

Research Question 1: What are rehabilitation counselor's perceived self-efficacy, perceived benefits, perceived barriers and readiness to use evidence in current VR service delivery practices?

Descriptive statistics for the three factors are presented for the self-efficacy, perceived benefits, and perceived barriers of the EBP-VR Survey. The readiness subscale in not included

in this analysis. Factor means and reliability statistics are presented below based on the participants responses (n=318).

Perceived Benefits Factor

The perceived benefits factor of EBP was measured on 13 items indicating the extent to which they agreed or disagreed with a series of statements describing potential benefits of EBP for the clients they serve. The average score for this factor was 7.61 (SD= 1.89; α = .898) indicating a moderately highly level of perceived benefits related to counselors' perceived benefits of EBP in service interventions to their clients based on scientific evidence. Rehabilitation counselor perceived benefits was reflected in item, "Increase the probability of identifying best evidence VR interventions consistent with the values and needs of VR clients" with a mean of 8.06 (SD=1.497), indicating a high level of potential benefit in selecting EBP interventions sensitive to clients diverse backgrounds and values. Other perceived benefits of EBP included, "Improve the working relationship (working alliance)" with a mean of 8.02 (SD=1.57), and, "Improve employment rates and employment outcomes" with a mean of 8.03 (SD=1.64) indicating a moderately high level of perceived benefits of EBP in determining appropriate interventions for clients. Overall, the participants reported moderately high selfefficacy in the provision of VR services. Table 12 below shows the EBP-VR Survey Perceived Benefits Factor Items by Practice Setting.

Tat	ole	12	
-	D 1		a

Statement	State Fed VR M (SD)	CRO M (SD)	Private/Workers Comp M (SD)	Other M (SD)
Increase the probability of identifying	8.06 (1.63)	8.40 (1.56)	7.53 (2.01)	8.30 (1.53)
Improve the working relationship (working alliance)	8.02 (1.57)	8.44 (1.56)	7.55 (2.10)	8.28 (1.58)
Improve employment rates and employment outcomes	8.03 (1.64)	8.48 (1.61)	7.45 (1.96)	8.13 (1.61)
Improve psychosocial outcomes for VR clients	7.95 (1.61)	8.44 (1.61)	7.63 (1.83)	8.34 (1.51)
Empower clients to exercise knowledge	8.01 (1.66)	8.68 (1.31)	7.85 (1.86)	8.38 (1.58)
Help identify the most effective and efficient	7.94 (1.58)	8.40 (1.44)	7.63 (2.16)	8.28 (1.58)
Improve client satisfaction	7.82 (1.78)	8.24 (1.810	7.46 (2.11)	8.00 (1.71)
Improve efficiency in utilization	7.69 (1.83)	8.12 (1.51)	7.50 (1.95)	8.01 (1.81)
Protect clients from ineffective or harmful	7.96 (1.67)	8.64 (1.50)	7.73 (2.18)	8.30 (1.83)
Help keep me abreast with current best evidence	8.12 (1.56)	8.72 (1.28)	8.27 (1.66)	8.71 (1.27)
EBP has the potential to help improve	7.29 (1.78)	7.88 (1.54)	6.75 (1.41)	7.74 (1.66)
I can see the value of EBP in vocational rehabilitation	7.65 (1.72)	8.32 (1.22)	7.14 (1.53)	8.26 (1.55)
I am interested in learning more about EBP	8.06 (1.70)	8.72 (1.51)	7.57 (1.80)	8.13 (1.82)
Average factor scores:	7.87 (1.66)	8.42 (1.50)	7.54 (1.89)	8.22 (1.62)

EBP-VR Survey Perceived Benefits Factor Items by Practice Setting

Self-Efficacy Factor

Rehabilitation counselor self-efficacy factor was measured on 9 items indicating how much confidence they have in their ability to select assessment and interventions for consumers based on the scientific evidence in their role as a rehabilitation counselor. The average score for this factor was 7.61 (SD= 1.89; α = .898) indicating a moderately highly level of perceived selfefficacy related to counselors' confidence to select assessments and interventions for clients based on scientific evidence. Rehabilitation counselor self-efficacy was reflected in item, "Use and evidence-based practice approach (i.e., motivational interviewing) in the professional practice of rehabilitation counseling" with a mean of 7.69 (SD=1.92), indicating a high level of self-efficacy in selecting EBP interventions. Self-efficacy factor item, "Provide VR interventions that have the highest level of scientific evidence and support" had a mean of 7.35 (SD=1.93), indicating a moderately high level of self-efficacy to use EBP in determining appropriate interventions for their clients. Overall, the participants reported moderately high self-efficacy in the provision of VR services.

Table 13.

EBP-VR Survey Self-Efficacy Factor Items by Practice Setting

Statement	State Fed VR M (SD)	CRO M (SD)	Private/Workers Comp M (SD)	Other M (SD)
		(SD)	in (5D)	III (5D)
Use current best evidence in making decisions about the care of clients consistent with values and peeds of	7.66 (1.85)	8.20 (1.12) 8.17 (1.77)	8.26 (1.52)
individuals from diverse backgrounds				
Provide psychosocial interventions that have the highest level of scientific evidence and support	7.14 (1.96)	8.08 (1.23	3) 7.97 (1.81)	8.19 (1.80)
Read and understand the best evidence information from systematic reviews/meta-analys	7.22 (2.01)	7.88 (1.51)	7.70 (1.96)	7.82 (1.90)
Critically evaluate the validity an generalizability of the research findings to make clinical decisi	nd 7.07 (1.99)	7.68 (1.55)	7.53 (2.31)	7.75 (1.92)
Provide VR interventions that have the highest level of scientific evidence and support	7.35 (1.93)	8.00 (1.38	3) 7.89 (1.77)	7.87 (1.77)
Use an evidence-based practice approach (i.e. motivational interviewing) in the professiona practice of rehabilitation counse	7.69 (1.92) dl eling	7.96 (1.34)	8.05 (1.92)	8.47 (1.59)

Table 13. (cont'd)

Statement	State Fed VR M (SD)	CRO M (SD)	Private/Workers Comp M (SD)	Other M (SD)
Understand basic concepts of	6.68 (2.47)	7.48 (2.24)	7.05 (2.43)	7.97 (1.92)
rehabilitation research, designs, methods and statistics				
Search the research databases and search engines (e.g., PsychINFO	d 6.68 (2.47) D,	7.48 (2.24)	7.05 (2.43)	7.97 (1.92)
and MEDLINE) to find empiric supported interventions	ally			
I take research findings into				
Consideration in helping clients	6.35 (2.03)	7.24 (1.62)	6.70 (2.24)	7.39 (1.87)
I use EBP concepts in making				
Decisions regarding services	6.62 (1.94)	7.36 (1.68)) 6.40 (2.14)	7.55 (1.93)
I use best evidence medical	7.08 (1.72)	7.52 (1.90)) 7.08 (1.83)	7.69 (1.77)
I use the internet	5.56 (2.46)	6.92 (2.75)) 6.12 (2.85)	7.19 (2.36)
I am using EBP in my RC role	5.73 (2.37)	7.20 (1.71)	6.07 (2.38)	6.86 (2.40)
I have completed training	6.33 (2.50)	6.60 (2.57)) 5.53 (2.86)	7.32 (2.51)
Average Factor Scores:	6.80 (2.12)	7.54 (1.77)) 7.09 (2.19)	7.72 (1.94)

Perceived Barriers Factor

CRCs perceived barriers to EBP was measured on 8 items indicating the extent to which they agreed or disagreed with a series of statements describing potential barriers to EBP. The average score for this subscale was 4.61 (SD=2.29; α =.878) indicating rehabilitation counselors across the three practice settings were in agreement with perceived barriers to EBP. Rehabilitation counselors perceived barriers to EBP were reflected in item, "There are no supervisors and counselors who are experienced in EBP in my agency that I can talk to", with a mean of 5.78 (SD=2.45) indicating rehabilitation counselors in this study agree there were no opportunities to discuss EBP with either supervisors or other counselors, which may inhibit their own use of EBP. Training was also a perceived barrier as reflect in item, "I do not have sufficient training to incorporate EBP in my practice", with a mean of 5.66 (SD=2.49) indicating rehabilitation counselors reported not having sufficient training to use EBP. However, this finding must be interpreted with caution as the finding does not specific at what level rehabilitation counselors lacked training in EBP.

Overall, the participants reported multiple barriers in the use of EBP. The multiple barriers range from lacking organizational infrastructure, lack of supervisory and colleague support, to individual practitioner barriers such as insufficient training in EBP, lack of time to incorporate EBP and EBP not fitting the demands of their current position.

EBP-VR Survey Perceived Barriers Scale Items by Practice Setting						
Statement	State Fed VR M (SD)	CRO M (SD)	Private/Workers M (SD)	s Comp Other M (SD)		
There is lack of support and encouragement from senior management for EBP in the agency	5.32 (2.43)	4.44 (2.29)	4.21 (2.19)	4.10 (2.44)		
There is lack of collective support for the use of EBP among my colleagues in my agency	5.55 (2.42)	4.64 (2.49)	4.73 (1.95)	4.42 (2.33)		
I do not have time to incorporate EBP in my work	4.34 (2.31)	3.56 (1.58)	3.97 (1.85)	3.29 (2.00)		
My agency does not have the infrastructure and interest (e.g., Intern electronic library resources, and agen policies and procedures) to support an encourage evidence-based rehabilitat counseling practice	4.86 (2.73) net, cy nd ion	3.84 (2.38)	3.94 (2.11)	3.84 (2.59)		
There are no supervisors and counselors who are experienced in EBP	5.78 (2.45)	5.08 (2.74)	5.43 (2.66)	4.67 (2.79)		
There is a lack of empirically validated VR interventions that I can use in my work as a VR counselor	1 4.58 (1.97)	4.40 (2.10)	4.50 (2.15)	4.28 (2.21)		
The use of EBP places too much demand on my role as a rehabilitation counselor	4.47 (2.08)	3.76 (2.01)	4.27 (2.13)	3.62 (2.05)		
I do not have sufficient training to incorporate EBP in my practice	5.66 (2.49)	4.44 (2.93)	4.80 (2.51)	4.31 (2.54)		

Table 14.

Table 14. (cont'd)

Statement	State Fed VR	CRO	Private/Workers	s Comp Other
	M (SD)	M(SD)	M(SD)	M(SD)
I do not believe EBP has any practical value	3.09 (1.99)	1.92 (1.35)	3.27 (1.98)	2.31 (1.83)
The use of interventions based on clinical experience is more	5.05 (1.55)	1.72 (1.88)	5.27 (1150)	2.01 (1.00)
effective than EBP	5.14 (1.77)	4.60 (1.56)	5.28 (1.73)	4.78 (1.68)
Average Factor Scores:	4.88 (2.26)	4.07 (2.14)	4.44 (2.13)	3.96 (2.25)

Summary

The results of research question one indicate that rehabilitation counselors possess selfefficacy to use EBP in a manner that benefits their clients. Rehabilitation counselors reported being able to research the literature about the problems presented by their clients, and use an evidence-based practice approaches in their professional practice of rehabilitation counseling. Rehabilitation counselors reported they value EBP and could perceived potential benefits for their clients in terms of providing EBP that meet the clients' individual VR needs, support informed choice and protect clients from ineffective our harmful practice. Rehabilitation counselors also identified barriers to EBP use, such as a lack of guidance from supervisors knowledgeable in EBP or colleagues with experience to consult with regarding EBP. Organizational barriers were identified as well including lack of agency resources to support EBP and rehabilitation counselor role expectations that limited time for EBP use. Research Question 2: What is the difference between practice settings and Rehabilitation Counselor EBP Self- Efficacy (RCSE) and Environmental Factors (EF) that influence the use of evidence-based service delivery practices: a.) State-Federal VR Program, b.) Community Rehabilitation Program (CRO), c.) Private for Profit/Worker's Compensation Rehabilitation?

Two one-way between groups analysis of variance (ANOVA) were conducted to determine if differences existed in rehabilitation counselor self-efficacy and perceived barriers to EBP based on practice setting. The first one way ANOVA was conducted to determine if differences exist between practice settings and rehabilitation counselor self-efficacy. The second one way ANOVA was conducted to determine if differences exist between practice settings and environmental factors (perceived barriers) to EBP. The practice settings used for this analysis were the state-federal VR program, CROs, and private for profit/workers compensation. The "Other" practice setting was not used in this analysis due to its' confounding nature with over sixty difference practice settings being reported, and some "other" practice settings being reported as "retired". The sample size for the two one way ANOVAs was n=224

Self-Efficacy and Practice Setting

A one way between groups ANOVA was conducting to determine if there were differences between rehabilitation counselor practice settings and self-efficacy. The three practice settings used for the analysis consisted of the state-federal VR program, CROs and private for profit/workers compensation. There was no statistically significant difference at the *p* < .05 level in self-efficacy for the three groups, *F* (2, 221) = .723, *p* = .486

Self-Efficacy ana	Practice Settii	ıg				
	Sum of					
	Squares	df	Mean Square	F	Sig.	
Between Groups	473.314	2	236.657	.723	.486	
Within Groups	72292.349	221	327.115			
Total	72765.664	223				

Table 15.Self-Efficacy and Practice Setting

Perceived Barriers and Practice Setting

A one way between groups ANOVA was conducting to determine if there were

differences between rehabilitation counselor practice settings and perceived barriers to EBP.

The three practice settings used for the analysis consisted of the state-federal VR program, CROs

and private for profit/workers compensation. There was no statistically significant difference at

the p < .05 level in self-efficacy for the three groups, F(2, 221) = .865, p = .422.

Table 16.

Perceived Barriers and Practice Setting								
	Sum of							
	Squares	df	Mean Square	F	Sig.			
Between Groups	448.885	2	224.443	.865	.422			
Within Groups	57316.280	221	259.350					
Total	57765.165	223						

Summary

The two one-way between groups ANOVA were not statistically significant with no differences between practice settings and rehabilitation counselor self-efficacy and perceived barriers to EBP. The non-significance may be related to the certification status of the study participants (CRCs), who have received professional training from accredited rehabilitation counseling education programs and have passed the national certification examination. This level of preparation and training may provide CRCs with the self-efficacy needed to pursue EBP on behalf of their clients. Additionally, CRCs are employed in a variety of practice settings including private/public agencies and for profit/nonprofit organizations. The results above indicate that the practice setting alone does not deter CRCs engaging in EBP. However, CRCs the in this study reported similar barriers to EBP across practice settings. The perceived barriers included lack of support from senior management and supervisors, lack of agency infrastructure to support EBP, and insufficient training in EBP.

Research Question 3: Are there differences between CRC demographics (i.e. gender, years of practice, practice setting, etc.) that influence Rehabilitation Counselor EBP Self-Efficacy (RCSE)?

Research question three examined the relationship between the predictor variables and rehabilitation counselor self-efficacy. To answer this question, the self-efficacy scale was regressed on CRC demographics (male, age, years as CRC, other work experience, master's degree, doctorate degree, rehabilitation counseling, caseload size, white, state-federal VR, and private for profit/workers compensation). The following is a description of the model preparation, followed by a presentation of the results for the full equation and the CRC sample.

Model Preparation

Eleven variables were entered into the model with dummy coding for highest education level (masters & doctorate), major area of study (rehabilitation counseling), race/ethnicity (white), and practice setting as individual variables of state-federal VR, CRO or private for profit/workers compensation. Dummy variables were established for male (yes = 1; no = 0), master's degree (yes = 1; no = 0), doctorate degree (yes = 1; no = 0),

rehabilitation counseling (yes =1; no = 0), white (yes =1; no = 0), state-federal VR (yes = 1; no = 0) and private for profit/workers compensation (yes = 1; no = 0). All demographic variables were entered simultaneously into the full model.

Model Equation

 $Yi = \mu i + \beta 1 \text{male} + \beta 2 \text{age} + \beta 3 \text{CRC} + \beta 4 \text{other work experience} + \beta 5 \text{masters} + \beta 6 \text{doctorate} + \beta 7 \text{rehabcounseling} + \beta 8 \text{caseload size} + \beta 9 \text{white} + \beta 10 \text{state-federal VR} + \beta 11 \text{private/worker comp.}$

Outcome Measure

The outcome variable for this research question is CRC self-efficacy as related to CRC demographics. Participants responded to a 10-point Likert scale indicating how much confidence they had in their ability to select assessment and intervention for clients based on the best scientific evidence in their role as a rehabilitation counselor.

Results

The model accounted for 10% of the variance in self-efficacy. One independent variable was significant; doctorate (B = 34.32; $\beta = .445$; p = .015) as a predictor for self-efficacy as compared to those with bachelor's degrees. The remaining independent variables were not significant and were not predictors of CRCs self-efficacy. This result may be due to the sample used for this study, e.g. CRCs. Given the level of pre-service training received from CORE accredited rehabilitation counseling programs and national certification, CRCs self-efficacy could be attributed to their educational preparation and pre-service training, and not attributed

any single demographic variable. Table 17 show the full regression model and Table 18 shows the correlations for all model predictors and the outcome measure.

Tun Moder Munple	Regressio	n						
	Unstanda	urdized	Standardize	d		95.0% Co	nfidence	
	Coefficien	nts	Coefficients			Interval for B		
						Lower	Upper	
Model	В	Std. Error	Beta	t	Sig.	Bound	Bound	
(Constant)	68.853	15.151		4.544	.000	38.965	98.740	
Male	.846	3.265	.021	.259	.796	-5.595	7.287	
Age	016	.145	011	111	.912	302	.270	
CRC	197	.172	109	-1.147	.253	536	.142	
OtherWorkEx	p .132	.165	.063	.803	.423	193	.458	
Masters	16.090	13.265	.224	1.213	.227	-10.076	42.256	
Doctorate	34.324	13.935	.445	2.463	.015	6.836	61.812	
RehabCoun	-3.602	3.147	083	-1.144	.254	-9.810	2.606	
CaseloadSize	.002	.013	.010	.148	.883	024	.028	
White	2.126	3.149	.048	.675	.500	-4.085	8.338	
StateFedVR	3.014	4.609	.079	.654	.514	-6.078	12.106	
PrivateWork	7.246	4.747	.175	1.526	.129	-2.119	16.610	

Table 17.Full Model Multiple Regression

a. Dependent Variable: SEFactorMean

	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	.16	1										
3	.10	.65	1									
4	.08	.42	.17	1								
5	20	11	15	16	1							
6	.15	.07	.09	.16	92	1						
7	.03	10	09	09	.22	16	1					
8	.01	.00	08	11	.11	09	.14	1				
9	02	.01	.15	003	.09	12	002	.02 1				
10	.50	.07	004	.10	09	.06	.007	02	.000 1			
11	.03	40	05	.02	02	.08	06	03	04	79	1	
12	.004	04	08	.09	19	.24	11	02	009	04	.10	1

Table 18.Correlations for All Predictors and Outcome Measure

Note: Data was imputed for missing values; there is no missing data. N=224. 1= male; 2 = age; 3 = CRC; 4 = other work experience; 5 = masters; 6 = doctorate; 7 = rehab counseling; 8 = caseload size; 9 = white; 10 = state-federal VR; 11 = private for profit/worker comp; 12 = factor score: self-efficacy.

Summary

Research question three explored CRC demographics obtained in this study that influenced Rehabilitation Counselor Self-Efficacy (RCSE). Of the CRC demographics one was significant; doctorate level education (B = 34.32; β = .445; p = .015) as a predictor for selfefficacy. The advanced pre-service training and education of the CRCs in this sample indicate that no on single demographic characteristic influenced the rehabilitation counselor self-efficacy, other than a doctorate level of education as compared to those with a bachelor's degree.

Chapter 5

DISCUSSION

The intent of this study was to explore rehabilitation counselor self-efficacy and work environment factors that influence the use of EBP in VR service delivery. To accomplish this, the EBP-VR Survey was selected to measure rehabilitation counselor self-efficacy, perceived benefits of EBP, perceived barriers to EBP use, and readiness to use EBP in VR service delivery and practice. The domains of this instrument were analyzed in an exploratory factor analysis to see if elements of the theoretical concepts of self-efficacy and stages of change (readiness) were indeed distinct categories.

EBP-VR Survey: Readiness Scale

Data collected from the EBP-VR Survey provided support for the concept of rehabilitation counselor self-efficacy, perceived benefits of EBP, and perceived barriers to EBP use in service delivery and practice. However, the concept of rehabilitation counselor readiness (stages of change; SOC) was not supported by the data. An EFA of the EBP-VR Survey showed that of the 12 items readiness scale items, 3 items loaded on factor 1 benefits, 6 items loaded on factor 2 self-efficacy, and 2 items loaded on factor 3 barriers. A review of the readiness items, specifically how the items were described, indicates the item may have described another concept. For example, readiness item number 11, "I do not believe EBP has any practical value in vocational rehabilitation" describes a barrier to EBP use and loaded on the barriers factor. Other examples include readiness item number 3, "I can see the value of EBP in vocational rehabilitation" loaded on the benefits factor and readiness item number 12, "I am using EBP in my role as a rehabilitation counselor" loaded on the self-efficacy factor.

The readiness scale items did not describe counselor readiness to use EBP in terms of SOC with this sample of CRCs. It appears the items on the readiness described associated concepts of self-efficacy, perceived benefits of EBP and perceived barriers to EBP use in practice. Potential explanations include the education level of the study participants and whether SOC is an appropriate theoretical concept to explore CRC readiness to use EBP in VR service delivery or counseling practice.

It should be noted that the majority of study participants received professional, preservice training from accredited rehabilitation counseling education programs, leading to a master's degree in rehabilitation counseling, and have passed the national certification examination for CRC. Therefore, SOC concepts of "ambivalence", "pre-contemplation", and "contemplation" used in describing individual attitudes towards implementation and action of certain behaviors (i.e., use of EBP) may not accurately measure CRCs attitudes and/or values towards EBP. Given the education, training and experience of the participants, results of this study, and *if* the SOC stages were applicable, the participants are most likely in the "action" and "implementation" stages of SOC. Participants acknowledged the benefits of EBP and reported having the self-efficacy to pursue EBP on behalf of their clients. The participants were also cognizant of the multiple barriers to the use of EBP at different levels, i.e., organizational, supervisory, and practitioner levels. Therefore, SOC theory may not accurately reflect CRC development in the use of EBP and another theory may be more appropriate.

Relationship with Previous Evidence-Based Research

Certified rehabilitation counselors who participated in this study reported the benefits of EBP as important in improving vocational rehabilitation outcomes for clients. They also reported having self-efficacy in developing and implementing EBP, while acknowledging multiple barriers to EBP use in VR service delivery. These findings are consistent with the rehabilitation literature that rehabilitation counselors believe the application of evidence-based practice is necessary, useful and will lead to improved quality of VR service delivery (Bezyak, Kubota & Rosenthal, 2010; Leahy, et al. 2014). Graham et al. (2013) reported rehabilitation counselors value research for practice, understood how to interpret research literature and apply the information in their job.

Tansey, Bezyak, Chan, Leahy & Lui (2014) conducted a study to identify and describe vocational rehabilitation professional's perceived self-efficacy, outcome expectancy, barriers and readiness to use evidence in current practice. The results from rehabilitation counselors from four state-federal VR agencies reported moderately high self-efficacy in the use of EBP and outcome expectancy. Bandura (1986) described self-efficacy expectancy as the belief that an individual is or is not able to perform the necessary actions to reach an intended to goal, while outcome expectancy is the belief that a certain behavior will have a specific outcome. The CRCs in this study reported a moderate level of self-efficacy in their ability to provide EBP. Specifically, CRCs reported the ability to provide psychosocial interventions that have the highest level of scientific evidence, use current best evidence in making decisions about the care of their clients consistent with the client's values, and understand the best evidence information from systematic reviews/meta-analysis. These results are consistent with Tansey, Bezyak, Chan,

Leahy & Lui (2014) findings, as well as demonstrating self-efficacy (Bandura, 1986) in the provision of EBP.

The study findings are also consistent with previous research regarding barriers to EBP implementation and use. Both organizational and individual characteristics including lack of knowledge to properly assimilate evidence-based practice on the part of service providers, poor leadership, bureaucratic constraints, and a change-averse culture (Corrigan, Steiner, McCracken, Blaser, & Barr, 2001). Limited training (Jette et al., 2003; Nelson & Steele, 2007) and time (O'Donnell, 2004) are major barriers to fully implementing evidence-base practice with practitioners spending at least eight hours each day providing direct service, resulting in limited time for training of new evidence or practices (Corrigan et al., 2001).

Study Limitations

A major assumption of this study is rehabilitation counselors' understanding of evidence-based practices. While it was assumed CRCs, given their level of education and certification status, would be informed of EBP, this may not be the case. Graham et al. (2013) asked state-federal VR counselors and other professional rehabilitation staff what they knew about evidence-based practice and how they use the information. The results indicated that rehabilitation professionals held multiple definitions of evidence-based practice, "researchbased", "documented evidence", "proven effective" and "practice or experience" reflecting a basic knowledge of EBP. To this researcher's knowledge, there are no data available describing how CRCs define evidence-based practices.

Another assumption concerns how EBP is valued by CRCs across the three practice settings of study, i.e., the state-federal VR program, community rehabilitation organizations, and

private for profit/workers compensation rehabilitation settings. While each practice setting strives to achieve competitive employment outcomes for their clients, program effectiveness and outcomes are measured differently. RSA standards and indicators are the measurements for the state-federal VR program and the Commission on Accreditation of Rehabilitation Facilities (CARF) provides standards for private and community rehabilitation programs. These outcome measurements drive the VR service delivery process, and may challenge the development and use of EBP within the different service delivery models. Additionally, each group is accountable to different stakeholders that hold considerable influence over service delivery efforts. For example, state-federal VR programs are accountable to RSA, client advocacy organizations and political entities while private rehabilitation providers are accountable to insurance providers in order to receive payment for services rendered. To ignore these realities is to neglect environment and systemic issues that challenge the implementation of EBP in VR service delivery.

Other potential limitations considered within the framework of this study include the sample, sample size, and use of electronic surveys and questionnaires. First, this study used a convenience sample comprised of Commission on Rehabilitation Counselor Certification (CRCC) members. CRCC members who are employed and belong to a professional organization may be different than rehabilitation professions who are employed but do not belong to a professional organization (Zanskas & Strohmer, 2011). CRCs may hold favorable impressions or attitudes towards the use of EBP, and may be inclined to validate the benefits of EBP by reporting an elevated sense of self-efficacy in their use of EBP.

Sample size may be a limitation based on survey response frequency. Current trends in survey research reflect that refusal and non-response rates have doubled for all surveys, regardless of type during the past decade (Birnbaum, 2004; Sheehan, 2001; Survey Monkey, 2008; Tourangeau, 2004). The response rate for this study was 15%, similar to Welker's (2001) study of web-based response rates of 900 individuals with fixed email accounts. Welker reported an overall response rate of 14% and it was determined that over one-third of the random sample simply did not read their e-mail over a two month period. The CRCs in this sample may have exhibited similar response behavior by not reading their email for an extended period of time, thus being unaware of the invitation to participate in this study.

Implications for Rehabilitation Administrators and Counselors

The CRCs who participated in this study provided evidence that multiple barriers exist in the use of EBP in VR service delivery. The results of this study found barriers to EBP exist at multiple levels from senior management and supervisor level down to the individual practitioner. Organizational barriers include lack of infrastructure and lack of support and encouragement to use EBP, "There is a lack of support and encouragement from senior management for EBP in the agency". Lack of supervisory experience in EBP and support for individual counselor use of EBP was reported, "There are no supervisors and counselors who are experienced in EBP in my agency that I can talk to". On the individual practitioner level, some participants reported, "I do not believe EBP has any practical value in vocational rehabilitation". Overall, participants reported a lack of collective support for the use of EBP from management and colleagues in the agency.

These barriers must be addressed in order to facilitate the development and implementation of EBP in VR service delivery. Recently, Del Valle et al. (2014) in a qualitative case-study of four state-federal VR agencies noted promising service delivery practices that enhance service delivery at multiple levels within an agency. These practices were a combination of strategies that freed up counselor time to engage in core job functions, partner with CROs for service delivery, address employer needs and provide services to specific populations. These strategies may offer rehabilitation administrators and counselors options with which to re-focus counselor activities, and facilitate the use of EBP by rehabilitation counselors within the state-federal VR program. Additionally, Sherman et al. (2014) identified promising organizational and cultural factors that appear to promote best practices in the public VR program. The promising practices include specific organizational practices, culture and structural elements that encourage and support the development of innovative and effective services delivery practices (Leahy et al., 2014).

As noted by Leahy, et al., (2014), "In this era of empowerment, accountability, and constrained budgets, state VR agency administrators need to transform the business models of their agencies by adopting organizational innovations and harnessing advances in information and communication technologies to deliver outcomes to individuals, communities and society at large that are of significant value" (p. 148; Ditchman et al., 2013; Technology and Entrepreneurship Center at Harvard, 2010). Rehabilitation administrators must seriously consider adopting non-traditional service models to meet the demands of multiple customers, especially the business community, if the current state-federal VR program is to survive into the future. Results from this study can be used to address organizational barriers to EBP.

Implications for Rehabilitation Counselor Educators

One of the perceived barriers noted in this study, "I do not have sufficient training to incorporate EBP in my practice", was reported by the participants. However, it does not specify at what level there is a potential lack of EBP training. It is unknown whether the participants were referring to pre-service training or training received on the job in conjunction with their role as a rehabilitation counselor. Rehabilitation counselor educators can address this issue by incorporating EBP concepts and techniques in pre-service curriculum. They may also develop and offer in-service EBP training to agencies and rehabilitation counseling professionals who are interested in learning and incorporating EBP into VR service delivery and individual practice. Rehabilitation educators can also inform students and other of existing EBP resources available on the Internet, usually at no cost.

Implications for Disability Advocates and Policymakers

There are external pressures for rehabilitation counselors in state-federal VR programs to demonstrate that they are using an array of evidence-based interventions in their practice to improve employment outcomes for customers with significant disabilities (Rubin, Chan & Thomas, 2003). The National Institute of Disability and Rehabilitation Research (NIDRR) has emphasized the focus on EBP in all research projects publicly funded through NIDRR (Brannon, 2010), along with a heightened awareness on the meaning of research findings, and translating and disseminating evidence-based practices so they affect and inform practice and policy (Leahy & Arokiasamy, 2010).

Given the move to a more data driven state-federal VR service delivery climate (Leahy, et al., 2014; Del Valle, et al., 2014), there will be a need to balance the demands for data driven

outcomes against maintaining client rights of informed choice, active participation in the VR process, and to ensure the continued provision of individualized VR services that meet specific client VR needs.

Disability advocates and policymakers must strive to seek a balance that protects individuals with disabilities by preserving informed choice and active participation in services while developing policy, based on research, that improve services and employment outcomes. The emphasis on EBP at the national and state level should be used to enhance services, and not exclusively to reduce or eliminate existing standards (i.e., qualified providers) or eliminate services without the opportunity to demonstrate effectiveness. As Tannenbaum (2003) noted public policy makers equate accountability with numbers. Disability advocates must educate policy makers as to the value of EBP as a means to improve service provision and outcomes, and not as method to eliminate programs or reallocation of resources.

Implications for Rehabilitation Researchers: Closing the Gap

As noted earlier, rehabilitation administrators must adopt new business models of service provision to meet multiple customer demands. This holds true for rehabilitation researchers as well. As stated by Leahy et al. (2014), "rehabilitation professionals must provide people with disabilities the most effective psychosocial and vocational services and interventions by integrating the best scientific evidence, with clinical expertise and client perspectives, to help them find good-paying jobs with benefits consistent with their abilities and career interests (Chan et al., 2011; Leahy, Thielsen, Millington, Austin & Fleming, 2009).

Rehabilitation researchers can help close the gap between research and practice by working with practitioners and individuals with disabilities to provide research findings that

improve services, interventions, and employment outcomes. This includes translating and disseminating EBP from research efforts to the organizational level that will affect and inform practice and policy (Leahy, et al. 2009). Rehabilitation researchers must focus their efforts on providing relevant research findings to practitioners that are of practical value and in a format that is easily accessible to non-researchers for ease of translation and dissemination into practice at the individual practitioner and client level.

The need for EBP has been established by national research priorities NIDRR and RSA (Brannon, 2010). Rehabilitation researchers must undertake research efforts to explore the need and nature of EBP in VR services delivery (Leahy, et al. 2014). The next step for rehabilitation researchers will be to facilitate EBP into practice at the practitioner level. Knowledge Translation (KT) efforts are currently underway and have produced multiple, accessible internet sites were interested stakeholders, practitioners and people with disabilities can reference to find empirically based EBPs. However, KT does not equate to implementation and use of EBPs at the organizational and practitioner levels. Rehabilitation researchers can play a critical role in researching appropriate EBP dissemination and implementation methods that will facilitate the use of EBP at the organizational and practitioner level. This will be a crucial undertaking if the current state-federal VR program is to move forward and provide needed services in the future based on evidence and that demonstrate solid EBP outcomes.

Conclusion

The findings of this study support and expand upon previous research regarding the use of evidence-based practices in rehabilitation counseling across a variety of practice settings. Results show that CRCs understand the nature and purpose of EBP, and more importantly the potential benefits of using EBPs in VR service delivery. The benefits of EBP included improving the working alliance, improving employment outcomes, empower clients to exercise knowledgeable self-determination, and protect clients from harm.

The CRCs who participated in this study also reported a level of self-efficacy that influence their use of EBP in terms of selecting appropriate interventions and services that incorporated client values and needs, use an evidence-based practice in their professional practice, and provide psychosocial/VR interventions based on scientific evidence. This level of self-efficacy reflects a level of professionalism and commitment to providing the best available services possible to VR clients. It is a positive reflection of the profession and also speaks to the need to further encourage the use of EBP in VR services delivery and rehabilitation counseling practice.

CRCs who participated in this study also acknowledged perceived barriers to the use of EBP. The barriers exist at multiple levels, from senior management down to the individual practitioner level in the form of lack of infrastructure to support EBP, lack of collective support and pragmatic issues such as lack of time and other work demands that prohibited the use of EBP. Fortunately, these barriers are not insurmountable and must be addressed if the state-federal VR program is to move forward into the future. Rehabilitation administrators are keenly aware of the need to adopt new business models to meet the demands of multiple customers, and recognize new methods of conducting the business of VR will be needed for the VR program to survive.

Finally, the need for EBP has never been greater. The future of the state-federal VR program, as well as other vocational rehabilitation service provider programs, are at stake.

Rehabilitation professionals in all areas, whether public, private or a CRO, need to embrace the importance and urgency of adopting EBP in order to demonstrate outcomes that are based on evidence as this will have an impact on future resource allocation. More importantly, people with disabilities who rely on VR services for employment and other services, need access to the best services available to meet their individual VR needs. The use of evidence-based practices is one way to ensure people with disabilities are receiving the level of services required to improve their employment outcomes and overall quality of life.

APPENDICES

Appendix A

Evidence-Based Practices in VR Service Delivery Survey

INTRODUCTION

MISSION STATEMENT OF THE RRTC-EBP-VR

The mission of the Rehabilitation Research and Training Center on Evidence-Based Vocational Rehabilitation (VR) Practice (RRTC-EBP-VR) is to conduct evidence-based research and to provide VR practitioners with evidence-based knowledge and tools that will improve employment outcomes and quality of employment for people with disabilities.

PURPOSE OF THIS STUDY

The purpose of this study is to solicit input from state VR counselors regarding the value of evidence-based practice (EBP) in VR service delivery practices; perceived barriers for EBP; and their preparation in incorporating EBP in their role as a rehabilitation counselor.

HOW WILL I BENEFIT BY TAKING THIS SURVEY

Information from this study will help us generate research and training materials to support evidence-based practices. These practices may enable you to provide more effective services within VR delivery systems, resulting in improved employment outcomes for people with disabilities. In the coming months, the following resources was available through the RRTC-EBP-VR:

* Information and tools related to implementing evidence-based practices in vocational rehabilitation

* The opportunity to participate in Communities of Practice related to evidence-based practices in vocational rehabilitation

* Technical assistance from the RRTC to help counselors implement evidence-based practices and to evaluate the effectiveness of using those practices in their respective states.

Taking this survey involves <u>minimal</u> risks <u>of being identified by your responses and breach of</u> <u>confidentiality</u>. However, all necessary steps to minimize these risks have been implemented.

WHAT WILL BY PARTICIPATION INVOLVE?

If you decide to participate in this research, you was asked to complete this evidence-based practice survey. Your participation will last approximately 10 to 15 minutes in total. As long as you do not lose your Internet browser connection, you should be able to take breaks as you are completing the survey and go back to change answer if needed. If you experience technical difficulties while taking this survey, please contact Roy Del Valle at <u>delvalle@msu.edu</u>.

HOW WILL MY CONFIDENTIALITY BE PROTECTED?

We will not know your name and will use a random number as ID for each participant. The computer data file will only include the ID of the participant.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research you contact the researcher Roy Del Valle at <u>delvalle@msu.edu</u>. If you are not satisfied with the response from the researcher have more questions, or want to talk with someone about your rights as a research participant, you should contact the Michigan State University...

CONSENT TO PARTICIPATE

Your completion of this survey will indicate your consent to participate.

Demographic Information Section

- 1. What is your gender?
 - a. Male b. Female
- 2. What is your age?
- 3. Years of work experience as a CRC vocational rehabilitation counselor:
- 4. Years of other rehabilitation related work experience:
- 5. Race/Ethnicity:
 - a. Caucasian
 - b. African American
 - c. Hispanic/Latino
 - d. American Indian/Native American
 - e. Asian American
 - f. Other:
- 6. What is your highest education level?
 - a. High School Diploma
 - b. Bachelor's degree
 - c. Master's degree
 - d. Doctorate degree
- 7. Please indicate your major are of study for your highest degree:
 - a. Rehabilitation Counseling
 - b. Rehabilitation Psychology
 - c. Psychology
 - d. Social Work
 - e. Other Counseling Specialty (e.g. Substance Abuse, Mental Health)
 - f. Other Vocational Rehabilitation Specialty (e.g. Vocational Evaluation)
 - g. Other (please specify):
- 8. Do you currently hold a valid certification/license as a rehabilitation counselor? a. Yes b. No
- 9. Client primary disability types? Not Frequently Somewhat Frequently Very Frequently Frequently Frequently

- a. Sensory Disability
- b. Physical Disability
- c. Development Disability
- d. Psychiatric Disability
- e. Other
- f. Other (please specify)
- 10. Have you attended in-service training related to evidence-based practices?
 - a. Yes b. No
 - If "Yes", list the titles for the training you have attended:
- 11. Work Setting:
 - a. State-Federal VR program
 - b. Community Rehabilitation Program
 - c. Private Rehabilitation Organization
 - d. Other
- 12. Caseload Size (Number of clients you are currently serving):

RRTC-EBP-VR Evidence-Based Practice Survey

DePalma (2002) described evidence-based practice (EBP) as a total process beginning with knowing what clinical question to ask, how to find the best evidence, and how to critically appraise the evidence for validity and applicability to the particular care situation. The best evidence then must be applied by a clinician with expertise in considering the patient's unique values and needs. The final aspect of the process is evaluation of the effectiveness of care and the continual improvement of the process.

The of high quality scientific evidence to guide the rehabilitation counseling practices has the benefits of helping counselors fulfill their ethical obligations to clients by protecting clients from harm (non-maleficence), improving efficiency in utilization of scarce resources (justice), and empowering consumers to exercise knowledgeable self-determination and truly informed choice (autonomy) (Chan, Tarvydas, Blalock, Strauser & Atkins, 2009). Research has indicated that rehabilitation counselors generally hold positive attitudes towards evidence-based practice. However, Bezyak, Kubota, and Rosenthal (2010) identified a lack of knowledge and insufficient academic preparation in evidence-based practice and research utilization as major barriers for implementation.

In short, evidence-based practice encourages counselors to use assessment and interventions that are supported by the highest level of scientific evidence possible. Examples of rehabilitation interventions that have high quality scientific evidence include counseling/psychology, motivational interviewing, and the Individual Placement and Support (IPS) model for people with psychiatric disabilities.

11. Part A.

Instructions: Please indicate how much confidence you have in your ability to select assessment and interventions for consumers based on the best scientific evidence in your role as a rehabilitation counselor. Use the 0-9 scale below to indicate your degree of confidence Scale: 0 = No Confidence, 4 = Some confidence, 9 = Complete Confidence
How much confidence do you have in your ability to:

Formulate appropriate clinical questions about the problems presented by the consumer.

- 1. Search the research databases and search engines (e.g., PsycINFO and MEDLINE) to find empirically supported interventions.
- 2. Understand basic concepts of rehabilitation research designs, methods, and statistics.
- 3. Critically evaluate the validity and generalizability of the research findings to make clinical decisions.
- 4. Read and understand the best evidence information from systematic reviews/metaanalysis.
- 5. Use an evidence-based practice approach (e.g., motivational interviewing) in the professional practice of rehabilitation counseling.
- 6. Provide psychosocial interventions that have the highest level of scientific evidence and support.
- 7. Provide VR interventions that have the highest level of scientific evidence and support.
- 8. Use current best evidence in making decisions about the care of clients consistent with values and needs of individuals from diverse backgrounds.

12. Part B.

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

Scale: 0 = Strongly Disagree, 4 = Unsure, 9 = Strongly Agree

The use of evidence-based practice will:

- 1. Improve employment rates and employment outcomes for VR clients
- 2. Improve psychosocial outcomes for VR clients.
- 3. Improve working relationship (working alliance) with your clients.
- 4. Improve client satisfaction.
- 5. Help identify the most effective and efficient VR interventions that are consistent with the cultural backgrounds of your clients.
- 6. Increase the probability of identifying best evidence VR interventions consistent with the values and needs of VR clients.
- 7. Help keep me abreast with current best evidence related to medical, psychological, and vocational assessments and interventions.
- 8. Empower clients to exercise knowledgeable self-determination and truly informed choice.
- 9. Improve efficiency in utilization of scarce agency resources.
- 10. Protect clients from ineffective or harmful services.

13. Part C.

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

```
Scale for Perceived Barriers:
```

```
0 = Strongly Disagree
```

```
1
```

```
2 = Disagree
```

3

```
4 = Unsure
5
6 = Agree
7
8
9 = Strongly Agree
```

- 1. The use of EBP places too much demand on my role as a rehabilitation counselor.
- 2. I do not have time to incorporate EBP in my work.
- *3. There is a lack of collective support for the use of EBP among my colleagues in my agency.
- *4. There is a lack of support and encouragement from senior management for EBP in the agency.
- 5. I do not have sufficient training to incorporate EMP in my practice.
- *6. My agency does not have the infrastructure and interest (e.g., Internet, electronic library resources, and agency policies and procedures) to support and encourage evidence-based rehabilitation counseling practice.
- 7. There is a lack of empirically validated VR interventions that I can use in my work as a VR counselor.
- *8. There are no supervisors and counselors who are experienced in EBP in my agency that I can talk to.

The asterisk * mark indicates the questions in which negative wording was substituted for positive wording. The changes are listed below:

- Question 3: "There is sufficient collective support.." to "There is a lack of sufficient support.."
- Question 4: "There is strong support.." to "There is a lack of support.."
- Question 6: "My agency has the infrastructure.." to "My agency does not have the infrastructure.."
- Question 8: "There are supervisors and counselors.." to "There are no supervisors and counselors.."

14. Part D.

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

Scale:

0 = Strongly Disagree 1

- 2 = Disagree
- 3
- 4 =Unsure
- 5

```
6 = Agree
```

7

8

9 = Strongly Agree

- 1. The use of treatment/intervention decisions based on clinical experience is more effective than EBP.
- 2. EBP has the potential to help improve the effectiveness of VR services delivery practices.
- 3. I can see the value of EBP in vocational rehabilitation.
- 4. I enjoy reading empirical research articles in the rehabilitation, health, and psychology fields.
- 5. I use best evidence medical, psychological, and vocational interventions in my rehabilitation practice.
- 6. I am interested in learning more about EBP.
- 7. I use EBP concepts in making decisions regarding services for my clients.
- 8. I take research findings into consideration in helping clients choose appropriate treatments and interventions.
- 9. I have completed in-service training on topics related to best evidence interventions such as counseling/therapy, Individual Placement and Support. Assertive Community Treatment, and Motivational Interviewing.
- 10. I use the Internet and academic databases to search for systematic review articles to help me select promising practices that are helpful to my clients.
- 11. I do not believe EBP has any practical value in vocational rehabilitation.
- 12. I am using EBP in my role as a rehabilitation counselor.

Appendix B

Table 19.Participant Practice Setting

	Frequency	Percent
State-Federal VR	120	4.0
Program	139	4.9
Community		
Rehabilitation	25	.9
Organization		
Private for		
Profit/Workers	60	2.1
Compensation		
Other	94	3.3
Total	318	11.1

Appendix C

Table 20.

Participant Highest Education Level

	Frequency	Percent
Bachelor's Degree	5	.2
Master's Degree	289	10.1
Doctorate Degree	19	.7
Total	313	10.9
Total	2862	100.0

Table 21.

	Frequency	Percent
Rehabilitation Counseling	248	8.7
Rehabilitation Psychology	12	.4
Psychology	4	.1
Social Work	2	.1
Other Counseling Specialty	24	.8
Other Vocational Rehabilitation Specialty	6	.2
Other	22	.8
Total	318	11.1

REFERENCES

REFERENCES

- Acock, A. (1997). Working with missing data. Family Science Review, 1, 76-102.
- Ajzen, I. & Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior. Englewood Cliffs, NJ: Prentice Hall, Inc.
- Ajzen, I. (1991). Theory of planned behavior. Organizational Behavior and Human Decision Process, 50, 179-211.
- Annual Disability Statistics Compendium (2013). Dunham, NH: Rehabilitation Research and Training Center on Disability Statistics and Demographics.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Bandura, A. (1978). The self-system in reciprocal determinism. *American Psychologist*, 344-358.
- Bandura, A. (1981). Self-referent thought: A developmental analysis of self-efficacy. In J.H.
 Flavell & L.D. Ross (Eds.) Cognitive social development: Frontiers and possible futures.
 New York, NY: Cambridge University Press.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147. doi: 003066x823702.
- Bandura, A. (1984). Recycling misconceptions of perceived self-efficacy. *Cognitive Therapy and Research*, *8*, 231-255.
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: PRENTICE-HALL, Inc.
- Bandura, A. (1988). Organizational applications for social cognitive theory. *Australian Journal Management*, *13*(2), 275-302.
- Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology*, 45, 1017-1028.
- Bandura, A., Jeffery, R.W., & Wright, C.L. (1974). Efficacy of participant modeling as a function of response induction aids. *Journal of Abnormal Psychology*, 83, 56-64.
- Beck, A.T. (1976). *Cognitive therapy and the emotional disorders*. New York, NY: International University Press.
- Bezyak, J.L., Kubota, C., & Rosenthal, D. (2010). Evidence-based practice in rehabilitation counseling: Perceptions and Practices. *Rehabilitation Education*, 24(1&2), 85-96.

- Birnbaum, M.H. (2004). Human research and data collection via the internet. *Annual Review of Psychology*, 55, 803-832.
- Blau, P.M. (1964). Exchange and power in social life. New York, NY: Wiley.
- Brannon, R. (2010). EBP Issue: Forward. Rehabilitation Education, 24(3 & 4), 177-178.
- Brinberg, D., & Castell, P. (1982). Journal of Personality and Social Psychology.
- Chan, F., Leahy, M. J., Saunders, J. L., Tarvydas, V. M., Ferrin, J. M., & Lee, G. (2003). Training needs of certified rehabilitation counselors for contemporary practice. *Rehabilitation Counseling Bulletin*, 46(2), 82-91.
- Chan, F., Tarvydas, V., Blalock, K., Strauser, D., & Atkins, B. J. (2009). Unifying and elevating rehabilitation counseling through model-driven, diversity-sensitive evidence-based practice. Rehabilitation Counseling Bulletin, 52, 114-119.
- Chan, F., Bezyak, J., Romero Ramierz, M., Chiu, C., Sung, C., & Fujikawa, M. (2010). Concepts, Challenges, Barriers, and opportunities related to evidence-based practice in rehabilitation counseling. Rehabilitation Education, 24, (3&4), 179-190.
- Chan, F., Bezyak, J., & Lui, J. (2013). Development and validation of the evidence-based practice-VR survey. Madison, WI: Rehabilitation Research and Training Center on Evidence-Based VR Practice.
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, *112*(1), 155.159.
- Chronister, J.A., Chan, F., Cardoso, E., Lynch, R., & Rosenthal, D.A. (2008). Evidence-based practice movement in health care: Implications for rehabilitation. *Journal of Rehabilitation*, 74(2), 6-15.
- Comfrey, A.L., & Lee, H.B. (1992). *A first course in factor analysis*. Hillsdale, NJ: Lawerance Erlbaum Associates.
- Commission on Rehabilitation Counselor Certification (2012). Scope of practice statement. Retrieved from http://www.crccertification.com/pages/crc_crcc_scope_of_practice/174.php
- Commission on Rehabilitation Counselor Certification (2010). Code of professional ethics for rehabilitation counselors. Retrieved from http://www.crccertification.com/pages/crc_crcc_code_of_ethics/10.php
- Corrrigan, P.W., Steiner, L., McCracken, S.G., Blaser, B., & Barr, M. (2001). Strategies for disseminating evidence-based practices to staff who treat people with serious mental illness. *Psychiatric Services*, 52, 1598-1606.
- Costello, A.B., & Osborne, J.W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation 10*(7). pg. 1-9.

- Council on Rehabilitation Education (CORE) (2009). CORE standards for graduate rehabilitation counselor education programs. Schaumburg, IL.
- DePalma, J.A. (2002). Proposing an evidence-based policy process. *Nursing Administration Quarterly*, 26(4), 55-61.
- Ditchman, N., Wu, M., Chan, F., Fitzgerald, S., Lin, C.P., & Tu, W. (2013). Vocational Rehabilitation. In D. Strauser (ed.), *Career development, employment , and disability in rehabilitation: From theory to practice* (pp. 343-360). New York: Springer Publishing Company.
- Eisenberger, R., Huntington, R., Hutchinson, S., & Sowa, D. (1986). Perceived Organizational Support. *Journal of Applied Psychology*, 71(3), 500-507.
- Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applies Psychology*, 75(1), 51-59.
- Evans, R.I. (1989). Albert Bandura: The man and his ideas a dialog. New York, NY: Praeger.
- Fabrigar, L.R., Wegener, D.T., MacCallum, R.C., & Strahan, E.J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3). 272-299.
- Fall, M.E. (1991). Counselor self-efficacy: A test of Bandura's theory. (Doctoral dissertation). Retrived from Proquest Dissertations and Theses. Order Number: 9218006.
- Field, A. (2009). *Discovering Statistics Using SPSS.* (3rd Ed.). London, UK: Sage Publications, Inc.
- Fleming, A.R., Del Valle, R., Muwoong, K., & Leahy, M.J. (2013). Best practice models of effective vocational rehabilitation service delivery in the public rehabilitation program: A review and synthesis of the empirical literature. *Rehabilitation Counseling Bulletin*, 56,(3), 146-159.
- Graham, C., Inge, K., Wehman, P., Murphy, K., Revell, W.G., & West, M. (2013). Moving employment research into practice: Knowledge and application of evidence-based practices by state vocational rehabilitation agency staff. *Journal of Vocational Rehabilitation*, 39, 75-81. doi: 10.3233/JVR-130643.
- Heppner, P.P., Kivlingham, D.M. & Wampold, B.E. (1992). *Research design in counseling*. Pacific Grove, CA: Brooks Cole.
- Ingersoll, G.L. (2000). Evidence-based nursing: What it is and what it isn't. Nursing Outlook, 48, 151-152.
- Jette, U.D., Bacon, K., Batty, C., Carlson, M., Ferland, A., Hemingway, R.D., ... Volk, D. (2003). Evidence-based practice: Beliefs, attitudes, knowledge, and behaviors of physical therapists. *Physical Therapy*, 83, 786-805.

- Kosciulek, J.F. (2004). Research applications in the longitudinal study of the vocational rehabilitation services program. *Rehabilitation Counseling Bulletin*, 47, 173.
- Kuo, H. (2013). Rehabilitation counselor's perceptions of importance and competence of assistive technology. (Doctoral dissertation). Retrived from Proquest Dissertations and Theses. Order Number: 3605734.
- Law, M. (2002). Evidence-based rehabilitation: A guide to practice. Thorofare, NJ: SLACK.
- Leahy, M.J., Chan, F., Lui, J., Rosenthal, D., Tansey, T., Wehman, P., Kundu, M., Dutta, A., Anderson, C.A., Del Valle, R., Sherman, S. & Menz, F.E. (2014). An analysis of evidence-based best practices in the public vocational rehabilitation program: Gaps, future directions, and recommended steps to move forward. *Journal of Vocational Rehabilitation*, 41, 147-163.
- Leahy, M.J., Del Valle, R.J., Sherman, S.G., Anderson, C., Tansey, T., Lui, J., Rosenthal, D., Bezyak, J., Kundu, M., Dutta, A., Lui, K., & Fitzgerald, S. (2014). Phase II Final Report: Multiple Case Studies on Effective Vocational Rehabilitation Services Delivery Practices. Lansing, MI: Rehabilitation Research and Training Center on Effective VR Service Delivery Practices.
- Leahy, M.J. & Arokiasamy, C.V. (2010). Prologue: Evidence-based practice research and knowledge translation in rehabilitation counseling. *Rehabilitation Education*, 24(3&4), 173-176.
- Leahy, M.J., Muenzen, P., Saunders, J.L., & Strauser, D. (2009). Essential knowledge domains underlying effective rehabilitation counseling practice. *Rehabilitation Counseling Bulletin*, 52(2), 95-106.
- Leahy, M.J., Thielsen, V.T., Millington, M.J., Austin, B., & Fleming, A. (2009). Quality assurance and program evaluation: Terms, models, and applications in rehabilitation administration. *Journal of Rehabilitation Administration*, 33(2), 69-82.
- Lustig, D., Strauser, D.R., Rice, N.D., & Rucker, T.F. (2002). The relationship between the working alliance and rehabilitation outcomes. *Rehabilitation Counseling Bulletin*, 46(1), 25-34.
- Macallum, R.C., Widaman, K.F., Zhang, S.B., & Hong, S.H. (1999). Sample in factor analysis. *Psychological Methods* 4(1), 84-99.
- Maddux, J.E., Norton, L.W. & Stoltenberg, C.D. (1986). Self-efficacy expectancy, outcome expectancy, and outcome value: Relative effects on behavioral intentions. *Journal of Personality and Social Psychology*, *51*(4), 783-789.
- McCabe, O.L. (2004). Crossing the quality chasm in behavioral health care: The role of evidence-based practice. *Professional Psychology: Research and Practice*, 35, 571-579.
- McCarthy, A.K. (2012). Relationships between supervisory working alliance, counselor selfefficacy, and number of successful client outcomes in the state/federal rehabilitation

counseling system. (Doctoral dissertation). Retrived from Proquest Dissertations and Theses. Order Number: 3540585

- McCluskey, A., & Cusick, A. (2002). Strategies for introducing evidence-based practice and changing clinician behavior: A manager's toolbox. *Australian Occupational Therapy Journal*, 49, 63-70.
- Meichenbaum, D.H. (1977). *Cognitive-behavior modification: An integrative approach*. New York, NY: Plenum.
- Nelson, T.D., & Steele, R.G. (2007). Predictors of practitioner self-reported use of evidencebased practices: Practitioner training, clinical setting, and attitudes toward research. *Administration and Policy in Mental Health and Mental Health Services Research*, 34, 319-330.
- Neulicht, A.T., McQuade, L.J., & Chapman, C.A. (Eds.) (2010). *The CRCC Desk Reference on Professional Ethics: A Guide for Rehabilitation Counselors*. Athens: GA: Elliot & Fitzpatrick.
- O'Donnell, C.A. (2004). Attitudes and knowledge of primary care professionals towards evidence-based practice: A postal survey. *Journal of Evaluation in Clinical Practice*, 10, 197-205.
- Pallant, J. (2010). SPSS Survival Manual (4th Ed.). Berkshire, UK: McGraw Hill Education.
- Paul, L., (1967). Strategy of outcome research in psychotherapy. *Journal of Counseling Psychology*, (*31*), 109-118.
- Prochaska, J.O, DiClemente, C.C., & Norcross, J.C. (1992). In search of how people change: Applications to additive behaviors. *American Psychologist*, 49(9), 1102-1114.
- Prochaska, J.O., & Norcross, J.C. (2001). Stages of change. Psychotherapy, 38(4), 443-448.
- Pruett, S.R., Rosenthal, D.A., Swett, E. A., Lee, G.K., & Chan, F. (2008). Empirical evidence supporting the effectiveness of vocational rehabilitation. *Journal of Rehabilitation*, 74, 56-63.
- Rappolt, S., & Tassone, M. (2002). How rehabilitation therapists gather, evaluate, and implement new knowledge. *Journal of Continuing Education in Health Professions*, 22, 170-180.
- Roessler, R.T. & Mullins, J.A. (1995). Factors affecting rehabilitation counselor performance: A social cognitive perspective. *Rehabilitation Education*, 9(1), 21-35.
- Ruben, S.E., Chan, R., & Thomas, D. (2003). Assessing changes in life skills and quality of life resulting from rehabilitation services. *Journal of Rehabilitation*, 69, 4-9.
- Sackett, D.L., Rosenberg, W.M.C., Gray, J.A.M., Hayes, R.B., & Richardson, W.S. (1996). Evidence-based medicine: What it is and what it isn't. *British Medical Journal*, *312*, 170-180.

- Schafer, J.L. (1997). *Analysis of incomplete multivariate data*. UK, London: Chapman & Hall. Book No. 72, Chapman & Hall series monographs on Statistics and applied probability.
- Schonlau, M., Fricker, R.D., & Ellliot, M.N. (2002). Conducting survey research surveys via email and the web. Santa Monica, CA: RAND.
- Sheehan, K. (2001). E-mail survey response rates: A review. *Journal of Computer Mediated Communication*, 6(2). Retrieved from <u>http://jcmc.indiana.edu/vol6/issue2/sheehan.html</u>.
- Sherman, S.G., Leahy, M.J., Del Valle, R., Anderson, C.A., Tansey, T.N., & Lui, K. (2014). Organizational and cultural factors that promote creative best practices in the public rehabilitation program: Findings from a four state multiple case study. *Journal of Vocational Rehabilitation*, 41, 115-125.
- Stevens, J.P. (2002). *Applied multivariate statistics for the social sciences*. (4th Ed.). Hillsdale, NJ: Erlbaum.
- Strauser, D.R., & Wong, A.W.K. (2010). Impact not efficacy: Applying the RE-AIM framework to rehabilitation counseling research. *Rehabilitation Education*, 24(3&4), 213-224.
- Survey Monkey. (2008). *Smart survey design*. Retrieved from http://s3.amazonaws.com/SurveyMonkeyFiles/SmartSurvey.pdf
- Tabachnick, B.C., & Fidell, L.S. (2013). *Using Multivariate Statistics* (6th Ed.). Upper Saddle, NJ: Pearson Education, Inc.
- Tannenbaum, S. (2003). Evidence-based practice in mental health: Practical weaknesses meet political strengths. *Journal of Evaluation in Clinical Practice*, *9*, 287-301.
- Tansey, T., Bezyak, J., Chan, F., Leahy, M., &Lui, J. (2014). Social-Cognitive predicators of readiness to use evidence-based practice: A survey of state-federal VR counselors. *Phase II Final Report: Multiple Case Studies on Effective Vocational Rehabilitation Services Delivery Practices.* Lansing, MI: Rehabilitation Research and Training Center on Effective VR Service Delivery Practices.
- Tarvydas, V., Addy, A., & Fleming, A. (2010). Reconciling evidence-based research practice with rehabilitation philosophy, ethics and practice: From dichotomy to dialectic. *Rehabilitation Education*, 24(3 & 4), 191-204.
- Technology and Entrepreneurship Center at Harvard. (2010). *The next generation of human services: Realizing the vision*. (A report from the 2010 Human Services Summit at Harvard University). Retrieved from http://community.Inwprogram.org/sites/default/files/Realizing_the_Vision.pdf
- Tourangeau, R. (2004). Survey research and societal change. *Annual Review of Psychology*, 55, 775-801.

- Welker, M. (2001). E-mail surveys: Non-response Figures Reflected. In Reips, U.D., Bosnjak, M. (Eds.), *Dimensions of Internet science* (pp. 231-237). Lengerich, Germany: Pabst Science Publishers.
- Winch, S., Henderson, A., &Creedy, D. (2005). Read, think, do!: A method for fitting research evidence into practice. *Journal of Advanced Nursing Practice*, *50*, 20-26.
- Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, 14(3), 361-384.
- Zanskas, S., & Strohmer, D.C. (2011). The state-federal rehabilitation counselor work environment. *Journal of Applied Rehabilitation Counseling*, 42(3), 3-11.