



5-2012

# Evidence Based Practice Implementation: Perceptions and Expectations of Master of Social Work Students

Mholi Kent Vimba  
mvimba@utk.edu

---

## Recommended Citation

Vimba, Mholi Kent, "Evidence Based Practice Implementation: Perceptions and Expectations of Master of Social Work Students. "  
PhD diss., University of Tennessee, 2012.  
[http://trace.tennessee.edu/utk\\_graddiss/1365](http://trace.tennessee.edu/utk_graddiss/1365)

This Dissertation is brought to you for free and open access by the Graduate School at Trace: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Doctoral Dissertations by an authorized administrator of Trace: Tennessee Research and Creative Exchange. For more information, please contact [trace@utk.edu](mailto:trace@utk.edu).

To the Graduate Council:

I am submitting herewith a dissertation written by Mholi Kent Vimba entitled "Evidence Based Practice Implementation: Perceptions and Expectations of Master of Social Work Students." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Social Work.

John. G. Orme, Major Professor

We have read this dissertation and recommend its acceptance:

Terri Combs-Orme, Matthew T. Theriot, Robert Kronick

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

---

Evidence-Based Practice (EBP) Implementation:  
Perceptions and Expectations of Master of Social Work (MSW) Students

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Mholi Kent Vimba

May 2012

Copyright © 2012 by Mholi Kent Vimba

All rights reserved.

## DEDICATION

This dissertation is dedicated to my beloved wife, Kate. Thank you for your unwavering love, support and encouragement. To my daughters, Amanda and Sakhile, for the love, your sense of humor, and laughter that helped put everything into perspective.

## ACKNOWLEDGEMENTS

This dissertation would not have been complete without the consistent help and support of many people. I would like to express my deep and unreserved gratitude to my dissertation committee chair, Dr. John Orme, and committee members, Dr. Terri Combs-Orme, Dr. Matthew Theriot and Dr. Robert Kronick. Thanks for the support, guidance, mentoring and for patiently reviewing several drafts of my proposal and dissertation. It was an honor to work with you. I am also grateful to Dr. David Dupper for his mentoring and generosity with his time and materials.

My family and I would be forever grateful to Rebecca and Ray Montgomery for their love and support over the years. Thank you. Special thanks to Munyaradzi and Felistas Munodawafa, for the support that saw us through difficult times. Thanks also to my parents, Miriam and Austine Vimba, and my mother-in-law Jessie, for their prayers. Finally, I would like to thank Dr. Tucker and colleagues for permission to use the Evidence-Based Practice Self-efficacy Scale (EBPSE) and Dr. Johnston and colleagues for permission to use the Knowledge, Attitude and Behavior (KAB) questionnaire.

## Abstract

Efforts to develop sustainable Evidence-Based Practice (EBP) implementation strategies in work settings have been generally unsuccessful. Scholars have focused on perceptions of workers already in work settings to identify implementation barriers and facilitators. None have focused on perceptions of social workers in training. This nationwide non-probability correlational study assessed Master of Social Work (MSW) students' perceptions of EBP using a self-administered online survey. A total of 212 (57%) completed this survey with 164 (43%) timed out.

Perceptions were assessed using three sets of questions corresponding to the independent variables: *EBP knowledge*, *attitude toward EBP* and *EBP self-efficacy*. A fourth set of questions assessed the dependent variable *intention to implement EBP after graduation*. The four measures had Cronbach's alphas ranging from .81 to .95, indicating good to excellent internal consistency reliability.

It was hypothesized that students reporting higher perceived knowledge, more positive attitudes, and higher self-efficacy would report a greater intention to implement EBP after graduation. The mean knowledge, attitude and self-efficacy scores were high, indicating students perceived their knowledge as high, had a positive attitude toward EBP and were confident of their ability to perform EBP related activities. The intention to use EBP scale total mean score was also high, suggesting that overall participants intended to implement EBP after graduation. Bivariate correlations supported all three hypotheses, indicating a statistically significant positive linear relationship between intention and knowledge, attitude, and self-efficacy. A simultaneous

multiple regression analysis also indicated a statistically significant relationship between intention and knowledge, attitude, and self-efficacy, also supporting all three hypotheses. The results indicate that focusing on attitude may be more important than methods and techniques. They also suggest that knowledge, attitude and self-efficacy could be the basis for models for developing sustainable EBP implementation strategies and to improving the way we teach EBP. Limitations of the study and recommendations for future research are also discussed.

## TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION .....	1
General Background .....	3
Barriers to EBP Implementation: Attitudes Towards EBP .....	4
Attitudes towards EBP implementation: depends on the question .....	7
Synthesis: attitudes towards EBP implementation studies .....	8
No explicit definition of attitude concept .....	8
EBP Implementation Barriers Related to Resources, Time & Training .....	9
Synthesis: Implementation barriers related to resources, time & training .....	12
EBP Barriers Differ by Setting and Service Provider Group? .....	12
Inter-group difference significant, small associations .....	15
Nature of the Evidence .....	17
Theory .....	20
Organizational social context .....	21
Implementation studies: assessing organization barriers first-hand .....	24
Organizational support and facilitation .....	25
EBP implementation and staff turnover .....	28
Limited Resources, poor morale, staff conflict and licensing .....	29
Measures .....	31
Barriers to Research Scale (BRS) .....	32
Research Utilization Questionnaire .....	33

The Evidence-Based Practice Attitude scale .....	33
Overall Synthesis: What We Know .....	34
What Remains Ambiguous? .....	35
What Remains Unknown? .....	35
CHAPTER II: THE PROBLEM.....	37
Research Questions.....	37
Research Hypothesis.....	37
Conceptual and operational definitions .....	38
Significance of the study.....	39
Assumptions.....	40
CHAPTER III: METHODS.....	41
Design .....	41
Advantages on online survey .....	41
Limitations of online survey methodology.....	43
Survey Pilot testing .....	45
Validity .....	46
Survey distribution.....	47
Population .....	48
Sampling.....	49
Recruitment of subjects and procedures .....	49
Institutional review, informed consent, confidentiality and anonymity .....	50
Instruments.....	51

Knowledge, Attitude Behavior (KAB) questionnaire.....	51
Evidence-Based Practice Self-Efficacy Scale (EBPSE).....	52
Intention to use EBP scale .....	53
Independent Variables .....	53
Dependent Variable .....	54
Data Collection .....	54
CHAPTER IV: RESULTS.....	55
Demographic Profile of Participants.....	56
Missing Item Responses .....	55
Internal Consistency Reliability.....	56
Correlations: Intention, Knowledge, Attitude and EBP Self-efficacy .....	57
Main Independent Variables Multiple Linear Regression Analysis.....	58
Demographic Variables Multiple Linear Regression Analysis.....	58
Strength of relationships .....	60
Simultaneous multiple regression assumption tests.....	60
CHAPTER V: DISCUSSION.....	62
Summary .....	62
Conclusions.....	63
EBP knowledge & intention to implement EBP after graduation .....	63
Attitudes towards EBP & intention to use EBP after graduation .....	66
EBP self-efficacy & intentions to use EBP after graduation .....	68
Implications for Theory .....	70

Implications for Education.....	72
Implications for Practice .....	73
Limitations .....	75
Limitations related to methodology .....	75
Limitations related to instruments .....	76
Practical limitations .....	79
Strengths of the Current Study.....	81
Recommendations for Future Research .....	82
Conclusion .....	83
LIST OF REFERENCES .....	84
APPENDICES .....	99

## LIST OF TABLES

Table 1	Participant's Demographic Profile.....	101
Table 2	Reliability Statistics.....	102
Table 3	EBP Knowledge Item Statistics.....	102
Table 4	Attitude Toward EBP Item Statistics.....	103
Table 5	EBP Self-efficacy Item Statistics.....	104
Table 6	Intention to Implement EBP Item Statistics .....	105
Table 7	Item and Scale Descriptive Statistics.....	105
Table 8	Pearson Correlations.....	106
Table 9	Multiple Regression: Intention, Knowledge, Attitude & Self-efficacy .....	106
Table 10	Multiple linear regression analysis demographic variables results .....	107
Table 11	Overall multiple regression analysis with six variables.....	108
Table 12	Current Study Item Means Compared with Previous Studies .....	109

## LIST OF FIGURES

Figure 1. Model of Causal Relationship Among Variables.....	40
---	----

## LIST OF ABBREVIATIONS

ACT	Assertive Community Treatment
BRS	Barriers to Research Scale
CSWE	Council on Social Work Education
EBMWG	Evidence-Based Medicine Working Group
EBP	Evidence-Based Practice
EBPSE	Evidence-Based Practice Self-Efficacy Scale
EBM	Evidence-Based Medicine
KAB	Knowledge, Attitude and Behavior questionnaire
NIMH	National Institute of Mental Health
MSW	Master of Social Work
RUQ	Research Utilization Questionnaire
CCQ	Creative Climate Questionnaire
EBPAS	Evidence Based Practices Attitude Scale
OSC	Organizational Social Context
MPAS	Modified Practice Attitudes Scale
CMH	Children's Mental Health organizations
EBT	Evidence-Based Treatments (EBT)
IDDT	Integrated dual disorders treatment (IDDT)
CT	Cognitive Therapy
DBT	Dialectical Behavior Therapy (DBT)
KAP	Knowledge Attitude Practice

mrInterview	Market Research Interview
SPSS	Statistical Package for the Social Sciences
NADD	National Association of Deans and Directors Schools of Social Work
NASW	National Association of Social Workers
IRB	Institutional Review Board

## CHAPTER I: INTRODUCTION AND LITERATURE REVIEW

Evidence-Based Practice (EBP) is now a core value of professional organizations such as the National Association of Social Work (NASW, 2010), and an important component of professional training in social work (Council on Social Work Education [CSWE], 2008). Originally conceived by the Canadian Evidence-Based Medicine Working Group (EBMWG, 1992) as a new philosophy in medical education called *Evidence-Based Medicine* (EBM), EBP is now synonymous with efforts to implement the best research evidence in regular practice settings. EBP is defined as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individuals” (Sackett, Rosenberg, Gray, & Haynes, Richardson, 1996, p. 71).

A substantial number of studies in social work (Kirk & Reid, 2002; Mullen & Bacon, 2004; Fixsen, Naom, Blasé, Friedman, & Wallace, 2005; Bellamy, Bledsoe, & Traube, 2006), medicine (Cabana et al. 1999), and nursing (Pravikoff, 2005) suggest that EBP implementation has been problematic and inconsistent. Research indicates that impediments to EBP implementation are multi-faceted and mostly related to the individual worker, patient, service-provider system, and particular organizational/social context (Grol, R. 1997; Oxman & Flottorp, 2001). Studies show that instead of using evidence produced in research, practitioners tend to rely on professional consensus and supervisors’ authority. Health care providers’ apparent failure to implement effective interventions is of national concern, prompting several National Institute of Mental Health (NIMH) initiatives to enhance and sustain proven interventions’ implementation in real-world practice settings (U.S. Department of Health and Human Services, 2006.).

A growing body of literature seems to suggest that poor implementation of EBP in practice settings may be traced to disagreements regarding definitions, conceptualization and how EBP is taught. For example, even Master of Social Work (MSW) faculty who train professional social workers do not agree on how to define, conceptualize and teach EBP (Rubin, 2007). In the field of psychology, Woody, Weisz and McLean (2005) found little agreement among doctoral and internship programs about the appropriate training curriculum in empirically supported treatments (ESTs). Bilsker and Goldner (2004) found that students perceive an inconsistency between messages delivered in the classroom and interpretations of clinical supervisors. This perceived inconsistency results in a disconnect between what students learn in the classroom and their fieldwork experiences. When this disconnect is combined with poor self-efficacy regarding research appraisal, it results in poor EBP implementation. Furthermore, students have been shown to resist research due to skepticism regarding its practical utility (McCrystal & Wilson, 2009). These studies appear to suggest that efforts to address EBP's poor implementation have to start with a deeper understanding of what social workers in training think about the framework.

The following is a general review of EBP implementation research. Although this review will focus specifically on EBP implementation research within the field of social work, implementation studies in medicine, nursing and other allied health professions also will be highlighted. EBP implementation studies from other disciplines will illustrate how research developments and trends in other fields have influenced similar efforts in the field of social work. This review will show that most EBP implementation studies have focused mainly on identifying barriers and ways to overcome these barriers among various stakeholder groups and

institutions. Also included in this review are studies assessing barriers to Evidence-Based Treatments (EBT) and Practice Guidelines. The EBT and practice-guidelines approach differs from EBP in that it emphasizes using EBP products in the form of “how to” manuals rather than the EBP approach which emphasizes the process (Drake, Hovmand, Jonson-Reid & Zaya, 2007). For this investigation’s purposes, both approaches are assumed to be necessary to close the research evidence-practice gap successfully by incorporating research results into the process of client care (McCabe, 2006).

The literature review consists of three main sections. The first section will cover background information that highlights some of the developmental trends in EBP implementation research in social work and other health-related fields. This section also will identify issues and variables and will assess methodological developments in EBP research. The second section will briefly preview conceptual and theoretical perspectives and assess in more detail EBP implementation studies based on the Organizational Social Context (OSC) theoretical framework. The third section will review selected instruments that have been used in this area. A brief summary of what is known about EBP implementation, what remains vague and what is unknown forms the last part of this review.

### **General Background**

Although a substantial number of studies have been conducted to improve EBP implementation in work settings, these studies have some common methodological weaknesses that limit our overall knowledge of implementation barriers and facilitators. The studies are characterized by small convenience samples, online surveys and focus-group methodology, which make it difficult to ascertain whether findings represent all practitioners across disciplines,

settings and educational levels nationwide. Moreover, studies that used surveys had low response rates, which are a serious problem because key variables of interest determine in part who is most likely to opt out of a sample (Berg, 2005). For example, in a study focusing on identifying EBP barriers, those with perceived low knowledge may not participate precisely because of this important characteristic of interest. Additionally, most of these studies' samples were drawn from workers already in the field, neglecting perspectives of those still receiving professional training, specifically Master of Social Work (MSW) students. However, despite these weaknesses, some robust and consistent findings exist across studies with different methods and across disciplines.

### **Barriers to EBP Implementation: Attitudes Towards EBP**

Workers' negative attitudes toward EBP have been shown to be a significant barrier to EBP implementation not just in the field of social work but in other health-related professions. In Sweden, Bostrom, Wallin and Nordstrom (2007) administered the Research Utilization Questionnaire (RUQ) and the Creative Climate Questionnaire (CCQ) to elder care staff ( $n = 132$ ) to identify determinants of research utilization. Representing a mix of skill sets, the study sample included nursing assistants ( $n = 52$ ), enrolled nurses ( $n = 15$ ), occupational therapists ( $n = 7$ ), physiotherapists ( $n = 5$ ), a speech therapist ( $n = 1$ ), a dietician ( $n = 1$ ) and a welfare officer ( $n = 1$ ). Although the sample represented a variety of professions, over-representation of workers without a college education such as nursing assistants ( $n = 52$ ) and enrolled nurses ( $n = 15$ ) limits comparisons with other similar studies. A valid argument can be made that workers without a college education could not be expected to competently utilize research since they likely never received any research training.

The Bostrom et al. (2007) sample was relatively large, allowing the use of more robust statistical procedures such as multiple regression. Additionally, the use of validated instruments strengthened the study. The 23-item RUQ (Champion & Leach, 1989) measures attitudes towards research, perceptions of availability and support of research findings, daily research utilization, participation in research-related activities, and access to research-related resources. (For the purposes of their study, the authors translated the RUQ into Swedish.) The 50-item CCQ assesses 10 dimensions of organizational climate. Findings showed that the main individual factors determining research utilization are *attitude toward research* (OR = 5.52,  $p = 0.0004$ ) and *seeking research that is related to clinical practice* (OR = 5.56,  $p = 0.019$ ). Organizational factors determining research utilization were identified as *support from managers* and *access to research findings*.

However, despite the sampling methodology's limitations, the Bostrom et al. (2007) findings were consistent with results of a relatively weaker qualitative e-mail survey of behavioral professionals; the survey was designed to identify major facilitators of and barriers to EBP (Pagoto et al., 2007). Though using a small sample of unknown representativeness ( $n = 37$ ) was a limitation common to studies assessing EBP implementation barriers and facilitators, this limitation did not inhibit identifying emergent themes about facilitators and barriers to EBP implementation.

Pagoto et al. (2007) asked members of a professional e-mail list-serv that included clinical psychology, health psychology and behavioral medicine professionals to identify the top two barriers and facilitators to EBP implementation. Fifty-seven percent of the respondents were women. Eighty-two percent had doctoral degrees, 11 % had pre-doctoral or post-doctoral

training and 2 % had master's degrees. No students or interns were included in the sample. The researchers used content analysis and consensus methods to review all responses for accuracy before developing coding instructions. To prevent raters from influencing each other, they worked independently to identify major themes before refining and coding them. Respondents identified seven themes, but negative attitudes to EBP and lack of training were the most often cited barriers to EBP implementation.

Compared to Pagoto et al. (2007), Booth, S., Booth, A. and Falzon (2003) surveyed a relatively large convenience sample ( $n = 595$ ) of local government social-care practitioners and managers in the United Kingdom (UK) to determine their attitudes toward EBP. Booth et al. (2003) did not provide any information regarding their measure's validity and reliability. However, the response rate was low at only 27% ( $n = 161$ ). Given this low response rate, it is impossible to eliminate the possibility that a disproportionate number of those with strong views about EBP implementation responded to the study. Non-response often correlates with other characteristics of interest (Berg, 2005).

Unlike Pagoto et al. (2007), Booth et al. (2003) used a 15-item measure covering training, access and barriers to evidence, and both opinions about and recent personal experience with EBP. This measure allowed Booth et al. to glean much more specific information related to EBP barriers than Pagoto et al. Fifty-eight percent of respondents had a favorable opinion of EBP, while 34 % reported some misgivings, and 5 % rejected the framework. Respondents were suspicious that the research evidence was inconclusive, irrelevant and inapplicable to individual needs.

**Attitudes toward EPB implementation dependent on the question.** Bortrager, Chorpita, Higa-McMillan and Weisz (2009) assessed the attitudes of 59 therapists using two attitude measures that differentially emphasized using treatment manuals. The researchers wanted to evaluate whether the manuals themselves or the “packaging” of evidence-based interventions were primarily responsible for therapists’ negative attitudes towards EBPs. Therapists recruited for the study were part of a longitudinal, randomized, clinical trial that examined children’s mental-health treatments. Participants were recruited from clinics, school-based mental health settings, and private practices. The sample age range was 25 to 60 with clinical experience ranging from less than a year to 35 years. Data were collected during the longitudinal study’s training phase.

It is unclear how Bortrager et al. (2009) selected the original larger sample from which participants were recruited. Furthermore, since participants represented only a subset of school-based and private-practice therapists, a more representative sample might yield different results. Attitudes were measured using two instruments: the Evidence Based Practices Attitude Scale (EBPAS), a 15-item scale developed by Aarons (2004), and the Modified Practice Attitudes Scale (MPAS), an unpublished 8-item measure developed by Chorpita, Weisz, Higa et al. (2004). Internal consistency reliability for the EBPAS was given as .77 and .80 for the MPAS.

Bortrager et al. (2009) is a stronger study because participants were assigned randomly to one of three treatment conditions: the standard manual treatment, the modular manual treatment, and the usual care treatment. Those assigned to usual care did not participate in the training. A mixed-factorial repeated-measures design was used to assess differences in therapists’ attitudes from pre- to post-training in the evidence-based conditions. Random

assignment makes this study one of the few with high internal validity and makes drawing causal inferences possible.

Borntrager et al. (2009) found that the therapists' attitudes became significantly more positive toward evidence-based practices on the attitude measure (MPAS) that did not specifically refer to the use of manuals. However, attitudes towards evidence-based practices did not change on the attitude measure (EBPAS) that emphasized treatment manuals. Results suggested that therapists did not harbor negative attitudes towards EBP as a whole, but had concerns with the use of treatment manuals. The results also highlighted the importance of refining the measurement of attitudes and how they are related to EBP implementation.

**Synthesis: attitudes towards EBP implementation studies.** The Booth et al. (2003), Pagoto et al. (2007) and Bostrom et al. (2007) studies discussed above illustrate some of the limitations of research in this area. The research methods used do not provide information about how attitudes toward EBP and other impediments manifest themselves in various practice settings and across service providers and professions. This limitation is serious, given that research (Aarons, 2004; Aarons et al., 2009) shows EBP implementation barriers varied by education, clinical experience, and organizational context, as well as across settings and job titles.

**No explicit definition of the attitude concept.** Apparently none of these studies provide an explicit definition of the attitude concept. Without an explicit definition of this concept, it is unclear whether studies ranking attitude as an important barrier to EBP implementation actually refer to the same concept. The Borntrager et al. (2009) study highlighted the importance of a clear definition of attitude by showing that results were varied when different measures of

attitude were used. According to Fishbein and Azjen (1975) an explicit definition of attitude is a minimal prerequisite for developing valid measurement procedures. These researchers also noted that providing an explicit definition of the attitude concept is particularly important to reduce the confusion and ambiguity often resulting when various related but different concepts (such as attraction, attribution of dispositions, and liking and behavioral intentions) are included under the general label “attitude” (Fishbein & Azjen).

Another problem related to attitude is that most of these studies imply that positive attitudes toward EBP will automatically result in behaviors promoting EBP implementation. However, according to Fishbein and Azjen (1975), attitude is a general predisposition not necessarily predisposing the person to perform any specific behavior; rather, it leads to a set of behavior intentions that indicate a certain amount of emotional response toward the object in question (Fishbein & Azjen). Many studies (LaPiere, 1934; Festinger, 1964; Wicker, 1969) question the assumption of a strong predictive relationship between attitude and behavior.

### **EBP Implementation Barriers Related to Resources, Time and Training**

Though attitude towards EBP is an important barrier to implementation, practitioners also often cite inadequate resources to support EBP, lack of time, inadequate training and inappropriate working conditions as serious barriers to the framework’s implementation. Proctor et al. (2007) solicited the EBP-implementation perspectives of agency administrators ( $n = 7$ ) from a similar number of purposively selected mental health agencies. The sampling frame consisted of agencies providing internships for the Master of Social Work practicum program. However, the agency administrators’ professional and educational profiles were not provided. Though the sample was small, prior research suggested that basic meta-themes could be

identified from as few as six interviews. Two members of the research team used a team-developed interview guide during in-person semi-structured interviews lasting between 40 and 90 minutes.

Results showed that heavy case loads, time constraints and limited computer access were formidable challenges to EBP implementation. However, the most frequently cited barriers were negative attitudes toward EBP and lack of training. The findings were similar to those obtained by Barwick et al. (2008), who used a web-based survey to assess research utilization in a relatively larger convenience sample of executives ( $n = 51$ ) and practitioners ( $n = 483$ ) across 80 children's mental health (CMH) organizations in Ontario, Canada. These researchers created two equivalent forms (one for executives and the other for practitioners) that assessed (using a Likert-type scale) the respondents' perception of the following EBP barriers: access to research, resources, staff and web access. However, the measure's reliability and validity were not reported.

The diverse and large number of community-based CMH providers in this study seems to be fairly representative of providers in Ontario. However, the low response rate (12.2%) is problematic because it suggests that certain individuals are under-represented. Moreover, the relatively large (72.5%) response rate among agency executives disproportionately represents their perceptions. Barriers to research utilization were identified as time, staff resistance, conflicting priorities, money, and access to evidence, results that correspond with Proctor et al. (2007). The disproportionately large-agency executive response rate rendered the Barwick et al. (2008) sample similar in profile to the Pagoto et al. (2007) sample, therefore explaining the similar findings. While these findings are important, they provide the perspective of only one

group. Practitioners who see clients regularly and students receiving their professional training in social work might very well identify different barriers to EBP implementation.

Edmond, Megivern, Williams, Rochman and Howard (2006) surveyed a more diverse convenience sample ( $N = 235$ ) from more than 180 national and international social service agencies to assess the degree of support for EBP among Master of Social Work (MSW) field instructors. A 25-item self-administered questionnaire with open- and closed-ended questions was sent to 761 field instructors. The initial mailing yielded only a 13% response rate that increased to 47 % after repeated follow-up requests, raising questions about generalizability, social desirability and selection bias. Those who responded probably felt obligated to please the researchers, who also happened to be faculty members. Respondents were aware that as faculty the researchers had certain expectations regarding teaching and implementing EBP at practicum sites. Furthermore, no information was given about non-responders, who were possibly different from responders in important ways that might have altered the findings.

Eighty-four percent of respondents indicated that lack of time was the biggest obstacle to EBP implementation. However, this high level of agreement is questionable given that respondents had different job titles and roles in their organizations, and represented diverse workplace settings. This finding appears to contradict studies (Aarons, Wells, Zagursky, Fettes & Palinkas, 2009; Cook, Biyanova & Coyne, 2009) that suggest barriers identified by practitioners vary depending on key variables such as educational level, practice setting, level of clinical experience and organizational context.

What distinguishes the Edmond et al. (2006) study is that it attempted to capture the views of Master of Social Work (MSW) field instructors regarding EBP implementation. Field

instructors are an important stakeholder group regarding EBP implementation efforts.

Understanding how field instructors perceive and teach EBP implementation is critical in assessing the quality of EBP training students receive in their field practicum. However, the study does not capture MSW students' perceptions.

**Synthesis: EBP implementation barriers related to resources, time and training.**

Studies show that inadequate resources, time and training are considerable barriers to EBP implementation and that these barriers cut across settings and professions. However, a common problem with these mostly qualitative studies is that they simply list resource-related barriers.

Typically these studies do not indicate the relative importance of the identified barriers.

Although the studies' findings are generally consistent, the use of surveys with small convenience samples (e.g.  $n = 7$ ; Proctor et al., 2007) and low response rates (e.g. 12.2% for practitioners in Barwick et al. [2008] and initially 13% for Edmond et al. [2006]) appear to reflect the difficulties of obtaining a good sample from a mailed or electronic survey.

Surveys have four potential sources of error: sampling error, non-coverage error, non-response error, and measurement error (Dillman, 1991; Wei Wei, 2003). However, according to Dillman (1991), low response rate, more than any other issue, has given mail surveys a poor image because non-response makes it impossible to compare respondents with non-respondents on precisely those variables of most interest to researchers. This point is critical because responders might be different from non-responders in ways that bias results.

**EBP Barriers Differ by Setting and Service Provider Group?**

A few studies suggest that one's job title, level of education, experience and type of work setting may influence how one perceives barriers to evidence-based practice. To develop a

measure assessing behavioral health service provider attitudes toward adoption of EBPs, Aarons (2004) used a convenience sample of clinical and case management service providers ( $N= 322$ ) from 51 public agencies providing mental health services to children and their families. Additionally, Aarons wanted to examine the association of attitudes toward adoption of EBPs with provider education level, professional status (i.e. intern vs. staff), primary discipline and organizational context. Aarons hypothesized that distinct aspects of EBP could be identified among mental health service providers regarding the following: (1) appeal of EBPs (2) requirements for using EBPs (3) openness to innovation, and (4) perceived divergence of EBP with usual practice.

The sample appeared to be diverse with 80% of participants being full-time employees whose primary disciplines included marriage and family therapy (33.9%), social work (32.3%), psychology (22.4%), psychiatry (1.6%) and others (9.9%). This study is one of the few to survey students in training. The sample consisted of interns (24.9%) and fully employed staff (75.1%).

Aarons (2004) found that the four attitudinal domains assessed (EBP appeal, requirements for using EBPs, openness to innovation and perceived divergence of EBP with usual practice) varied by education, experience and organizational context. The most consistent finding was that interns endorsed positive attitudes towards adoption of EBPs relative to professional providers. Aarons found that more educated respondents were more likely not only to indicate that EBPs made sense and were intuitively appealing but also that they were getting sufficient training and that colleagues were happy with EBP interventions. Findings suggested that professional internships could be used to reinforce the value of using EBPs. No significant differences were found in attitudes toward adopting EBPs across disciplines. Additionally,

Aarons found that service providers working in programs characterized by low bureaucracy were more predisposed to adopt EBPs, were more open to new practices, and were more willing to try new innovation when required to do so.

In a newer qualitative study, Aarons et al. (2009) used a focus group with a small, demographically diverse purposive sample ( $N = 31$ ) to assess whether impediments to EBP implementation varied across six stakeholder groups. A stakeholder was defined as someone involved with the mental health system either as an employee or services recipient. However, as in the earlier study, participants were drawn from one public-sector mental health service system. Questions may be raised whether the findings apply to workers in private and non-profit agencies. Participants represented county officials, agency directors, program managers, clinical staff, administrative staff and consumers, but no students were included.

Aarons et al. (2009) used a racially diverse sample drawn from the nation's sixth-largest county. In stakeholder-specific focus groups, participants used concept mapping to generate and organize 105 statements identifying implementation barriers and facilitators, which were reduced to 14 by consensus. Concept mapping is a method Trochim (1989) developed to diagrammatically organize and show relationships among concepts. The researchers elicited participation responses using approaches such as the Delphi method, which potentially could result in less consistent data. The Delphi is well suited for research where knowledge is incomplete and where the goals are to improve understanding of problems, opportunities, solutions and to develop forecasts (Skulmoski, Hartman & Kahn, 2007). However, inconsistency is possible because a series of data collection and analysis interspersed with feedback is used to collect and condense anonymous expert judgments. This inconsistency could potentially bias

findings in a way that could lead to the conclusion that significant stakeholder group differences exist when in fact there are none.

Each stakeholder group was asked to rate the importance of factors affecting EBP implementation based on a 0 to 4 scale, with 0 = not important and 4 = extremely important. Researchers found that different stakeholder groups had different ratings for each of the 14 EBP implementation barriers and facilitators. For example, agency directors and administrative staff rated the *Costs of EBP* as the biggest barrier (3.42 and 3.56, respectively), versus an overall mean rating of 3.13. Clinicians rated *Consumer values and marketing* the least important EBP implementation factor (2.67) while this factor was the most important for consumers (3.47). County officials rated the *Costs of EBP* and *Funding* as the least important EBP implementation barrier.

**Inter-group differences significant but strength of associations small.** In contrast to studies by Aarons (2004) and Aarons et al. (2009), an internet survey with a larger and relatively diverse sample ( $N = 1,600$ ) found that despite significant demographic, training, and work-related intergroup differences in rating several barriers, the strength of associations between EBP implementation barriers and key demographic variables was negligibly small (Cook et al., 2009). The study's main purpose was to identify barriers to adopting new treatments and to assessing whether there were intergroup differences in the ratings of barriers. The study relied on a sample of 2,607, from a list of 22,000 (40%) readers of a popular psychotherapy magazine. Of the 2,607 participants, 1,630 gave at least one response to the open-ended question on barriers. Findings were compromised by the low response rate (estimated at 13%) and a high percentage of missing values (35%).

This study's sample differed in important ways from the sample in the Aarons et al. (2009) study, possibly accounting for the differences in findings. The sample's mean age was 51 ( $SD = 9.99$ ). Social workers (36%) constituted the largest group in the sample. The remainder of the sample consisted of counselors (22%), psychologists (16%), marriage and family therapists (16%) and others (10%). The majority of participants (52%) were in private practice, and 48% worked in outpatient mental health facilities, compared with the Aarons et al. (2009) and Aarons (2004) studies, which relied on purposive samples drawn from public agencies. Additionally, this study excluded students, whereas Aarons' (2004) study included interns.

The Cook et al. (2009) study was based on self-reports to open-ended questions versus the Aarons et al. (2009) study that used focus groups. Aarons et al. sought to identify factors believed to facilitate or hinder EBP implementation in public mental health services, whereas Cook et al. sought to identify perceived barriers to adopting new treatments in general. Some overlap occurred in the studies' identified barriers. However, Cook et al. found that *time* was the top barrier while Aarons et al. identified *funding* as the most important and the least changeable barrier to EBP implementation. However, *funding* and *time* may mean the same thing in agencies offering services for a fee because with less funding, practitioners must usually seem more clients. Unlike Aarons (2004), who found that interns showed more positive attitude towards new treatments, Cook et al. found that for particular clients, less experienced clinicians were more likely to question applicability of new treatments, whether EBP or non-EBP.

However, despite considerable variations in methods (electronic mail survey in the Cook et al. [2009] study and focus groups in the Aarons [2004] and Aarons et al. [2009] studies), there was striking agreement on some issues, such as insufficient training, lack of acceptance of EBPs,

colleagues' support and institutional requirements. Findings were also consistent with those of Nelson, Steele and Mize's (2006) qualitative study that identified the following barriers to EBP implementation: limited practitioner time due to heavy caseload, lack of training and supervision, economic restriction imposed by third-party reimbursement, client resistance and complex client presentation. Findings were also similar to the Pagoto et al. (2007) e-mail survey that identified negative attitudes toward EBP and lack of time and money as the most often cited barriers to EBP implementation and the Edmond et al. (2006) survey of national and international social work field instructors that identified lack of time as the biggest obstacle to EBP implementation.

### **Nature of the Evidence**

Practitioners who object to EBP implementation often complain that inadequate evidence is used in validating interventions. Nelson et al. (2006) used a small convenience-sample focus group ( $N = 19$ ) of community mental health workers divided into two groups of 10 and 9 to investigate attitudes toward EBP and to identify implementation challenges. The sampling method limited this study's generalizability while the small sample did not allow precise measurement of the difference between the two groups. Twelve Masters-level licensed social workers, 4 PhD-level licensed clinical psychologists, 2 Masters-level psychologists, and an advanced nurse practitioner participated in the study. No students or interns participated.

Although participants were asked about EBP implementation challenges, EBP characteristics more likely to promote use of treatments, and where they obtained information on treatments, no definition of the framework was provided. Instead, participants were asked to provide their own definition of EBP in addition to answering questions about treatment research and providing recommendations. Without a uniform definition of EBP, it is uncertain whether

the respondents were talking about the same concept. This lack of an appropriate definition of EBP is a limitation, given that research shows the way a framework is defined influences attitudes toward it (Borntrager et al., 2009).

Participants cited characteristics of EBP as the major challenge to implementation. More specifically, participants identified the biggest challenges to EBP implementation in community practice as an EBP's applicability to work settings, complexity of its protocols and length of time required for implementation. However, lack of a formal definition of EBP combined with the use of a focus group format, which is susceptible to reflecting the most outspoken participants' views, necessitates caution in interpreting these findings.

Characteristics of EBP or the nature of the evidence is not just a concern among social workers but also a concern among other professional in health-related fields. In the United Kingdom (UK) a descriptive study based on a mail questionnaire identified barriers to research utilization among a convenience sample ( $N = 88$ ) of mental health nurses (Carrion, Woods & Norman, 2004). Findings of this study are strengthened by the use of a questionnaire that incorporated the Barriers to Research Scale (Funk, Champagne, Wiese & Tornquist, 1991), a standardized measure made up of 29 items within four subscales.

The four subscales of the Barriers to Research scale consist of the following characteristics: the *organization/setting* in which the research will be used; the *nurse's* (the potential adopter of research) values, skills and awareness; the *communication/dissemination*; and the quality of the *research* itself such as the methodological inadequacies, lack of replication, etc. (Funk et al. 1995). Additional items invite respondents to add anything else they regard as a barrier to research utilization. Items on the scale were scored on a five-point Likert

scale with high scores on items and sub-scales indicating perceptions of strong barriers to research utilization. Using a standardized scale allowed for easy replication of the findings across other groups and settings. However, subscales' reported test-retest reliability scores were .65, .72, .80 and .80. Though these scores were within acceptable range, they were possibly not high enough to identify significant relationships.

Carrion et al. (2004) found that the biggest barriers to research utilization included organizational context or issues related to workplace setting and issues related to the characteristics of the individual nurse such as values, research awareness, unwillingness to try new ideas, lack of capacity to evaluate research, and inability to identify potential benefits of changing practice. However, among these barriers, *lack of time on job to implement new ideas* was considered the greatest barrier to research utilization. Findings from the Carrion et al. study were consistent with the literature (Proctor et al., 2007; Pagoto et al., 2007; Edmond et al., 2006). Findings also illustrated that barriers to EBP implementation and to research utilization were similar across disciplines and despite the use of different research methods.

To assess factors influencing the implementation of evidence, Rycroft-Malone et al. (2004) used an exploratory focus group ( $n = 2$ ) for developing an interview guide in the first phase and semi-structured interviewing at two sites ( $n = 17$ ) in the second phase. In the first phase, 60- to 90-minute discussions were recorded and later transcribed verbatim. Semi-structured interviewing in the second phase focused on the initiatives' evidence base, the implementation process, the implementation context, and key success and barrier factors. The nurses identified evidence-related issues as the biggest barrier to research utilization, more specifically the definition of *evidence*. Although this study's results appear to differ from those

of Carrion et al.'s (2004) study, differences seem to reflect the two studies' differing formats and goals. The Rycroft-Malone et al. study was more exploratory with objective being simply to identify broader themes relating to factors influencing evidence implementation.

However, the Rycroft-Malone et al. (2004) findings appear to be more consistent with another study from the UK that gathered the views of a purposive sample of more than 100 to identify ways EBP is supported or frustrated in 50 local authority and voluntary child care agencies (Barratt, 2003). The first stage of the 2-year longitudinal study involved a focus group ( $n = 40$ ) that discussed and collated perceived barriers to EBP. These views were turned into semi-structured telephone interviews with managers ( $n = 36$ ) in the second stage. Responses from the second stage were then collated into 110 statements that were subsequently turned into a questionnaire used in the third stage. The questionnaire was then sent to staff ( $n = 50$ ) who were nominated by their agencies. Results showed respondents rated the evidence's uncertain nature in social care as the top barrier to EBP implementation.

Although both the Rycroft-Malone et al. (2004) and Barratt (2003) studies identified evidence as the top barrier to EBP implementation, it is unclear how this barrier is manifested in various organizational contexts, practice settings and job categories. Moreover, exclusive use of focus groups and questionnaires without random selection raises serious questions regarding the findings' external validity. Evaluating the findings of all three studies cited in this section must take into account the potential for selection bias and social desirability bias as a result of the sampling methods and data collection formats.

## **Theory**

According to Grol and Wensing (2004), researchers have assessed EBP implementation using a variety of theoretical models and conceptual frameworks - ranging from those related to the individual (such as cognitive, education, attitudinal and motivational theories) to those related to social context (such as social learning and social network). To understand MSW students' behavior, the current study's theoretical framework is largely based on models focusing on the individual professional's characteristics. These theories and models go by various names, but all assume that human behavior change is related to such factors as knowledge, attitude and self-efficacy (Higa & Chorpita, 2007).

Researchers also have used organizational and economic-context models that focus on innovation in organizations, quality management, and organizational learning. Most of the studies reviewed above were largely based on both the individual worker characteristics and the organizational environment theoretical and conceptual frameworks. Reviewing all the theoretical frameworks in detail is not possible here. However, this section will highlight one theoretical framework that is becoming increasingly popular in EBP implementation literature, the organizational social context (OSC). Often termed *culture and climate*, the OSC was originally developed by industrial psychologists as part of the human relations movement in the 1930's. However, the concept only became widely used by the helping professions in the 1980's in response to major changes in the health field brought about by growing managed care (Gershon, Stone, Bakken, Larson, 2004).

**Organizational social context.** Surveys and focus groups consistently show that practitioners rate issues related to workplace settings, such as lack of training, time and support, as being among the major barriers to EBP implementation (Carrion et al., 2004; Aarons &

Palinkas, 2007; Nelson & Steele, 2007). Lately this finding has been supported by more robust implementation and randomized controlled studies that have shown successful EBP implementation depends on the work environment or organizational social context (OSC) as much as on the innovation. According to Glisson et al. (2008), "... an organization's social context can complement and enhance the adoption and successful implementation of new technologies, present barriers to the adoption of new technologies or truncate or adapt a technology (e.g., treatment model) in ways that reduce the technology's effectiveness" (p. 99). This section will review some of the studies that have focused on the role of the organizational environment in impeding or facilitating EBP. This review will highlight methodological strengths, and limitations as well as what these studies tell us about EBP-implementation barriers and what remains unknown.

Glisson et al. (2008) developed the Organizational Social Context (OSC) scale, a contextual measure designed to assess the constructs of culture, climate and worker attitude, which together constitute the work environment. Although various definitions of these concepts exist, *organizational culture* generally refers to the norms, values, expectations and attitudes that affect how things are done in an organization, what is valued, and what is rewarded.

*Organizational climate* refers the work environment's psychological impact on individual workers (Verbeke, Volgering & Hessels, 1998).

In a nationwide study of purposively sampled clinicians ( $N = 1,154$ ) from 100 mental health clinics nationwide, Glisson et al. (2008) concluded that OSC was central to understanding why EBPs implemented in community-based settings are less effective than in clinical trials.

Glisson et al. used only clinics with five or more clinicians and whose directors allowed the OSC

to be administered directly to workers in scheduled on-site staff meetings. This approach disqualified 100 clinics from the original 200. Though non-participating and participating clinics were similar in relation to education and number of therapists employed, clinics could have been different in terms of the variables being measured and other variables that were not measured but that influenced the findings.

Respondents in each clinic completed the surveys simultaneously during a staff meeting with no upper-level managers present, in order to reduce potential response bias. After the meetings, participants returned the completed surveys in sealed envelopes directly to the research assistants. The sample was 76% female and 71% Caucasian; 67 % had master's degrees with 41% having majored in social work and 32 % in psychology. However, the sample's representativeness in terms of demographics could not be established because of lack of national data describing the mental health service workforce.

Although this study did not directly assess EBP barriers and other researchers may still have to validate the OSC, this study's conclusions have important implications for EBP implementation research. The OSC norms make it possible to meaningfully describe each workplace's contextual profiles to facilitate EBP implementation. According to Glisson et al. (2008), the comprehensive social context profiles can then be used to identify specific contextual characteristics that are potential barriers to EBP implementation. This finding suggests that appropriate organizational contexts can then be created specifically to facilitate EBP implementation. The national norms associated with the OSC measure appear to address a serious limitation of focus groups – the difficulty of assessing how barriers identified by participants manifest themselves in various settings. A specific OSC profile that aids in

identifying and addressing EBP barriers at any work setting can be created. Though the OSC measure has since been used in other studies (Cahalane & Sites, 2008), it has not been specifically used to facilitate EBP implementation.

An earlier study assessing perceptions of research utilization barriers and facilitators among a convenience sample of nurses ( $N = 2,600$ ) in 23 Northern Ireland hospitals showed that most barriers were related to setting (Parahoo, 2000). The Barriers Scale (Funk et al., 1991), a 28-item self-administered scale with a reported test-retest reliability ranging from .68 to .83, was used. Although 1,368 (52.6%) respondents completed the survey, the figure was still low enough to raise the possibility of selection bias. Furthermore, the high percentage of *no opinion* on a number of items related to *research* was a serious limitation that may have influenced the findings.

Parahoo (2000) speculated that the nurses' inability to respond appropriately to items assessing whether research constituted an important barrier to research utilization was due to a general lack of research-related skills and knowledge. Findings showed that respondents believed management support was critical to facilitate research utilization, particularly in terms of creating a work environment where change was seen as desirable. More specifically, the nurses indicated that support could be in the form of resources, training, funds, and encouragement when other staff members opposed to research utilization changes.

**Implementation studies: assessing organizational barriers firsthand.** Researchers in other fields, such as psychiatry and nursing, have also found that organizational social context issues can be considerable barriers to EBP implementation. Some of that research has focused on capturing practitioners' views and firsthand experiences during the actual introduction of new

EBP procedures in work settings. However, these implementation studies are generally characterized by methodological limitations that include small samples and unknown representativeness. Furthermore, these studies have a high potential for selection and social desirability biases due to reliance on focus groups and investigators who also happen to be direct supervisors. Despite these limitations, implementation studies give researchers a unique opportunity to observe and get first-hand accounts of EBP implementation barriers and facilitators. Implementation studies also allow researchers to use multiple data-collection methods, such as focus groups, standardized instruments, interviews and reviews of administrative data and practitioner notes. This first-hand assessment means that implementation studies have high ecological validity.

**Organizational support and facilitation.** In one such qualitative study in Stockholm, Swedish researchers evaluated psychiatric clinicians to identify perceived facilitators and barriers to complying with and implementing guidelines in treating depression (Forsner, Hansson, Brommels, Wistedt & Forsell, 2010). Though practice guidelines are not equivalent to EBP, this study is relevant because guidelines are important tools for promoting evidence-based practice (Yana & Jo, 2004).

Two psychiatric clinics similar in structure and organization were purposively sampled from an original list of six. One clinic served as the control and only received guidelines by mail. At the second clinic, a multi-disciplinary team led by an external psychiatrist facilitated guideline-implementation activities that included seminars, regular feedback, and trained staff giving information to providers in their workplace. This format allowed researchers to get feedback during real-life implementation. However, social desirability bias could not be ruled

out, particularly as one of the investigators also ran focus groups and provided academic support to participants. Contact with researchers during academic supervision, interviews and focus groups is also likely to have influenced the implementation group's responses. These influences, rather than substantive issues, may explain the differences between the two groups' findings.

The control group, which only received the mailed practice guidelines, had a more negative attitude towards EBP and practice guidelines. Members of the control group feared that practice guidelines were inspired by underlying financial motives and that guideline implementation could result in loss of professional autonomy. In contrast, the implementation group had a more positive attitude towards guideline use. A desire to please the facilitation team, some of whose members were also the researchers, cannot be eliminated. The study's main finding was that getting evidence into practice depended on more than practitioners' motivation. Organizational social context issues, such as culture, leadership, evaluation, performance feedback and facilitation, were important to get evidence into practice. These findings lend support to findings by Glisson et al. (2008).

A 2-year mixed-method implementation study (Gioia & Dziadosz, 2008) that assessed EBP adoption through firsthand accounts of worker experiences ( $n = 14$ ) during both training in EBPs and implementation in a work setting appears to corroborate findings by Forsner et al. (2010). The sample was drawn from a single large mental health agency that was all white. Of the total sample, 11 were female. Half held master's degrees while the others had bachelor's degrees. No information was provided as to why the particular agency was selected.

The four EBP's with manuals selected for training and implementation were the following: integrated dual disorders treatment (IDDT), cognitive therapy (CT), dialectical

behavior therapy (DBT), and McFarlane's Multi-Family Therapy. IDDT is an evidence-based practice that combines mental-health and substance-abuse interventions specifically for the complex needs of clients with comorbid disorders (Drake et al., 2001). Cognitive therapy is an active, directive, time-sensitive, structured and collaborative psychotherapy developed by Aaron Beck in the early 1960s as a treatment for depression (Beck & Tompson, 2007). Using a combination of emotional regulation cognitive-behavior approaches and elements of Eastern philosophies such as Zen, dialectical behavior therapy was developed by Marsha Linehan and her colleagues for the treatment of individuals with borderline personality disorder (Linehan & Dexter-Mazza, 2001). Multi-family therapy was developed in a psychiatric hospital by MacFarlane in 1982 to help families re-socialize and to reverse the stigma associated with mental illness, aid families in enmeshed relationships to set boundaries , normalize intra-family communication, and develop skills for appropriately managing any crisis (Asen, 2002).

Evaluating this study's findings was difficult because Gioia and Dziadosz (2008) simultaneously implemented four very different interventions designed for different populations. The study format gave researchers multiple opportunities to observe participants and collect data during scheduled training in the four EBPs, during group and individual supervision, and review of video-taped bi-weekly practitioner sessions with clients. However, the focus groups and the hour-long monthly meetings presented a potential for social desirability bias. Moreover, loss of 4 (28.6%) participants during the study may have compromised the findings.

To collect quantitative data, Gioia and Dziadosz (2008) used the 15-item Evidence-Based Attitudes Scale (EBPAS), developed by Aarons (2004). The psychometric properties of the EBPAS are discussed in another section of this review. The combined use of quantitative and

qualitative techniques makes the Gioia and Dziadosz study comparatively stronger than studies that relied solely on data from electronic surveys with unreported psychometric properties (Edmond et al., 2006; Pagoto et al., 2007; Cook et al. 2009). However, consistent with Glisson et al. (2008) and Forsner et al. (2010), Gioia and Dziadosz found that the top barriers to EBP implementation were related to organizational context issues. Barriers included heavy case loads, uneven supervision, tension between in-house trainers and workers, and supervisor turnover. Using grounded theory techniques to interpret data, the researchers concluded that EBP implementation requires a supportive agency context that encourages positive attitudes towards adopting innovations.

**EBP implementation and staff turnover.** Studies such as Glisson et al.'s (2008) suggest that a poor OSC and resultant staff turnover can be a substantial barrier to implementing EBPs. A study by Woltman et al. (2008) appears to support this conclusion. Examining a small convenience sample of 42, the researchers implemented psychosocial EBPs in public mental health agencies to assess the relationship between staff turnover and implementation outcomes. The 2-year longitudinal study also assessed whether worker perspectives on turnover were related to implementation outcomes.

The nonprobability sample was drawn from 52 sites across eight states that volunteered to participate in the national demonstration project. However, no equivalent comparison group was available for assessing the turnover effect on organizational change. Despite limited generalizability, this study appears to have high ecological validity because data were collected during EBP implementation in actual work settings. The project included agency- and clinician-level interventions designed to facilitate the implementation of five EBPs empirically validated

through several clinical trials. Practice models were then developed through expert consensus and served as the intervention's primary outcome.

ANOVA indicated that there were not statistically significant differences between EBPs in turnover rates. Multivariate linear regression was used to examine 24-month fidelity outcomes and turnover during implementation while controlling for baseline score and team size. The overall model was statistically significant and explained approximately 14% of variance in the fidelity scores ( $p = .02$ ,  $R^2 = .14$ ). Seventy-one percent (30 of 42 teams) noted that turnover was a significant factor in implementing EBP. Sixteen of the 30 viewed turnover as a barrier to EBP implementation because of resulting difficulties in having enough trained workers to deliver the new practices. Twelve teams viewed turnover as having a positive impact. Though qualitative results were mixed, overall the researchers concluded that while turnover might be beneficial depending on the circumstances, very high turnover was almost always a hindrance to EBP implementation.

**Limited resources, poor morale, staff conflict, and licensing.** An implementation project to identify barriers and facilitators to high-fidelity implementation of assertive community treatment (ACT) suggests that EBP implementation is impeded by a complex set of multi-dimensional factors (Mancini et al., 2009). Over a two-year period, researchers followed 13 teams purposively selected by the two states participating in the ACT implementation project. Model fidelity was assessed at baseline and subsequently every six months. Key informant interviews, surveys and monthly on-site visits were used to monitor implementation processes related to barriers and facilitators. Standardized data collection ensured comparability across sites.

At the state level, barriers included licensing, limited financing, poor training and insufficient technical assistance. However, given that there was no comparison team that did not receive system-level support, these findings appear speculative. Moreover, researchers acknowledged that the two states differed on variables over which they had no control and could not measure. At the organizational level, researchers found that team leadership and staffing were critical to successful EBP implementation. Specifically, researchers found that weak team leaders did not address personnel problems, leading to organizational disarray and lower morale, and substantially affecting implementation. Teams with low-fidelity were characterized by high staff turnover, conflict and more negative attitudes towards EBP implementation.

In Canada, Ploeg, Davies, Edwards, Gifford and Miller (2007) assessed perceptions of administrators ( $n = 59$ ), staff ( $n = 58$ ) and project leaders ( $n = 8$ ) about factors influencing implementation of best practice guidelines in nursing. The researchers conducted post-implementation semi-structured telephone interviews with participants from 22 organizations that implemented one of seven guidelines in acute, community and long-term care settings. Qualitative data related to facilitators and barriers associated with guideline implementation were analyzed thematically.

Researchers found that barriers included negative staff attitudes and beliefs, limited integration of guidelines into organizational structures, limited time and other resource constraints, and organizational and system-level change. Though these findings are consistent with the literature, the semi-structured interviewing did not allow researchers to capture how these barriers are experienced across different settings and service-provider groups. Ploeg et al. (2007) also found indications that workers in some settings, such as long-term care and

community agencies, identified guideline-implementation barriers unique to their work environments. This finding appeared to provide additional support to findings by Forsner et al. (2010) and Aarons et al. (2009) that barriers differed by group and setting.

Inter-organizational and professional association supports were identified as facilitators. Ploeg et al. (2007) concluded that this finding suggested that factors influencing implementation were interlinked both vertically and horizontally in complex, nonlinear relationships. This required implementation efforts to address the complex relationship among factors relating to the individual practitioner, the organization, the environment and the innovation.

## **Measures**

Besides the use of small samples, samples of unknown representativeness and low response rates, studies that assess barriers to EBP implementation are also limited by the use of measures with unknown psychometric properties or with very little information about psychometric properties. Some of the studies (Pagoto et al. 2007; Edmond et al. 2006; Cook et al. 2009; Barwick et al. 2008) used measures developed specifically for their investigations and did not provide details regarding reliability or validity. However, a high level of agreement exists among results of studies that used validated instruments and those that did not report the psychometric properties of their instruments. Below is a brief description of a few selected instruments.

The instruments were selected because they are characterized by several key details missing in some of the improvised scales reviewed for this study. All three instruments clearly report the reliability and validity, enabling readers to assess whether the instruments consistently and accurately measure what is intended. Additionally, the instruments describe methodological

details and how the items were developed; provide details such as the original purpose of the instrument, type of response items and ease of scoring. Providing psychometric properties of instruments together with descriptions of methodology is important to enable readers to assess circumstances under which the instruments work best (DeVellis, 1996).

**Barriers to Research Scale (BRS).** Two studies (Carrion et al. 2004 & Parahoo, 2000) in this review used the Barriers to Research Scale (Funk, Champagne, Wiese & Tornquist, 1991), a widely used standardized measure of barriers to research utilization for nurses. The scale has a reported test-retest reliability ranging from .68 to .83. According to Funk et al. (1991), the instrument was developed to assess clinicians', administrators' and academicians' perceptions of barriers to using research findings in practice. The instrument's items were developed from research utilization literature; from the Conduct and Utilization of Research in Nursing (CURN) project research-utilization questionnaire developed by Crane, Pelz and Horsley (1977); and from informal data gathered from nurses. The scale's 29 items were the results of extensive consultation among research utilization experts, nursing researchers, direct practice nurses, and a psychometric specialist. Items for which there was a consensus about face and content validity were retained and subsequently transformed into an instrument and pilot tested with graduate nursing students.

A factor analytic procedure was used to identify factors in which only those items with loadings greater than .40 were selected. Factor 1 with eight items dealing with the characteristics of the potential *adopter* of the research had loadings of .40 to .78. Factor 2 dealing with *characteristics of the organization* also had eight items loading .41 to .80, while six items comprised Factor 3 dealing with *characteristics of the innovation* with loadings of .41 to .77.

Factor 4 dealing with *characteristics of the communication* also had six items with loadings of .40 to .65. Each item was rated on a scale from 1 to 4, reflecting the degree to which the item was perceived to be a barrier (1 = *to no extent*; 2 = *to a little extent*; 3 = *to a moderate extent* and 4 = *to a great extent*). A “no opinion” response was allowed.

**Research Utilization Questionnaire (RUQ).** Other researchers (Bostrom et al. 2007; Tranmer, Lochhaus-Gerlach & Lam, 2002; Lacey, 1994) in the nursing field used the Research Utilization Questionnaire (Champion & Leach, 1989) to assess factors hindering or facilitating research use in clinical settings. The RUQ measures three variables linked by previous research to utilization, namely attitudes toward research (12 items), perceptions of availability of research findings and institutional support (8 items), and research utilization in daily practice (9 items). Items were rated using a 5-point Likert scale that ranged from 1 = *strongly disagree* to 5 = *strongly agree*. Items to assess attitudes toward research utilization included the following: “I would change my practice based on research findings,” “I think more nurses should use research in their practice,” and “I think research is exciting.” According to Champion and Leach, experts judged all items for content validity. Internal consistency reliability coefficients as measured by Cronbach’s alpha ranged from .84 to .94. According to these authors, experts assessed all items for content validity.

**The Evidence-Based Practice Attitude Scale (EBPAS).** The 15-item Evidence-Based Practice Attitude Scale developed by Aarons (2004) was used by Bontrager et al. (2009) and in several other studies to assess barriers to EBP implementation in social work. According to Aarons, an initial pool of 18 items was generated from the literature review, consultation with mental health service providers and child and adolescent services researchers with experience

working with clinicians to implement evidence-based protocols. A total of 18 items assessed the following: openness to innovation, rigidity related to academic training, perception of the utility of research-based interventions and manualized interventions, consistency in therapeutic practices over time, interest in using new interventions, perceptions of the importance of requirements and empirical support for interventions, and divergent attitudes toward adopting EBPs.

The 18 items had the following four subscales: *Appeal* - the extent to which a provider would adopt a new practice if it is intuitively appealing, makes sense, could be used correctly, or is being used by colleagues who are happy with it; *Requirements* - the extent to which a provider would adopt a new practice if an agency, supervisor or state requires it; *Openness* - extent to which a provider is open to trying new interventions and would be willing to try or use new types of therapy; and *Divergence* - the extent to which a provider perceives research-based interventions as not clinically useful and less important than clinical experience. Response options were 0 = *not at all*, 1 = *to a slight extent*, 2 = *to a moderate extent*, 3 = *to a great extent*, and 4 = *to a very great extent*. Alphas ranged from .90 to .59 with an overall scale alpha of .77. The alphas for the four subscales were as follows: Appeal (four items; = .80), Requirements (three items = .90), Openness (four items = .78), and Divergence (four items = .59). Factor inter-correlations ranged from  $r = .03$  to  $r = .50$ .

### **Overall Synthesis: What We Know About EBP Implementation Barriers**

Research on EBP implementation barriers consistently shows that worker factors (such as attitudes toward EBP, unawareness, lack of knowledge, and low efficacy regarding EBP) combined with organizational factors (such as lack of training, time, funding, resources and

managerial support) are important barriers to EBP implementation. These findings appear to be consistent across work settings and fields. Furthermore, these findings also appear to be consistent across studies that used widely different research methodologies.

### **What Remains Ambiguous?**

Although much is now known about the general barriers to EBP implementation, it is still unclear how these barriers manifest across different settings. For example, it is unclear whether organizational social context barriers that workers experience in large residential nonprofit mental health agencies manifest themselves in the same fashion and to the same extent as in small for-profit outpatient clinics. Additionally, since most of the information on barriers was based on surveys with samples of unknown representativeness, determining whether the findings are true across all settings and job descriptions is impossible.

### **What Remains Unknown?**

Most of the studies focused on social workers or other professionals who were already in the field, neglecting the perceptions of those who are still in training. Only one study (Aarons, 2004) included interns' perceptions of EBP, while one other study (Edmond et al. 2006) surveyed national and international MSW field instructors' perceptions. Therefore, not much is known about what those receiving professional training think about EBP and what factors predispose trainees to implement EBP after graduation. This is particularly important in the context of studies indicating that students may be getting inconsistent messages regarding EBP (Rubin, 2007; Bilsker & Goldner, 2004; McCrystal & Wilson, 2009). Understanding EBP views and perceptions of MSW students is important given that social workers are the largest group of mental health services providers (Thyer, 2008). According to Aarons (2004), interns show more

positive attitudes toward new treatments, suggesting that efforts to encourage implementation of EBPs in work settings may be more successful if EBP's values are reinforced during professional training.

## CHAPTER II: THE PROBLEM

The purpose of this study is to assess how MSW students' perceptions of EBP affect intentions to implement EBP after graduation, given that most of what we know about barriers to EBP is based on work-place experiences. We still do not know what factors are associated with social work students' intentions to implement EBP after graduation. Assessing MSW students' perceptions is particularly important in the context of studies that show trainees may be skeptical of EBP due to apparent contradictions and inconsistencies regarding how it is taught and implemented. Specifically, this investigation will assess whether the knowledge, attitudes and EBP self-efficacy of students during training are related to their intention to implement EBP in their work settings post-graduation.

### Research Questions

This study will be concerned with the following questions within the context of MSW professional training in Council of Social Work Education (CSWE) accredited educational institutions: Is self-reported *Knowledge of EBP* associated with MSW students' intention to implement EBP after graduation? Is an MSW students' *Attitude toward EBP* associated with intention to implement EBP after graduation? Is *EBP Self-efficacy* associated with MSW students' intention to implement EBP after graduation?

### Research Hypotheses

The following hypotheses were derived from the research questions:

- H1. MSW students who report that they know more about EBP are more likely to report an intention to implement EBP after graduation.

- H2. MSW students with positive attitudes toward EBP are more likely to report an intention to implement EBP after graduation.
- H3. MSW students who strongly believe in their ability to implement EBP are more likely to report an intention to use EBP after graduation.

**Conceptual and operational definitions.** In this study, *Implementation* is defined as the use of strategies to introduce or change evidence-based health interventions within specific settings (NIH, 2011). *EBP Knowledge* encompasses the awareness of EBP; an ability to define EBP; the ability to clearly apply the EBP process in the form of asking questions, appraising evidence, applying evidence to a clinical situation and assessing client outcomes; and the practical application of specific evidence-based interventions. However, this study will not directly assess the students' *actual knowledge* ( also called *objective knowledge*) but instead will measure self-reported knowledge (also called *perceived knowledge* or *subjective knowledge*). How self-reported knowledge relates to actual knowledge is the topic of considerable debate. Moreover, researchers disagree on how these perceptions of knowledge affect behavior and decision-making. Some researchers (Radecki & Jaccard, 1995; Ruble, Walters, Yu & Setchel, 2001) have found low correspondence between actual and self-reported knowledge. However, a considerable body of literature suggests that self-report measures of knowledge are appropriate for use in studies due to their correlation with objective measures. According to these studies, self-report measures of knowledge are particularly likely to be highly correlated to actual measures of knowledge for people who have received formal training (such as college courses) in a domain (Park, Gardner, & Thukral, 1988; Kanwar, Grund & Olson, 1990). The researchers

concluded that those who receive college training are likely to more accurately evaluate their knowledge due to the exact feedback given during classes (Kanwar, Grund & Olson).

*Attitude toward EBP* will refer to the complex mental state involving perceptions, beliefs, feelings, values, expectations, and dispositions towards EBP. *EBP Self-efficacy* will refer to the belief in one's ability to succeed in implementing EBP. *Intention* will be defined as plans and willingness to implement EBP in practice settings after graduation.

**Significance of the study.** Although we know much about EBP implementation barriers, this knowledge is based on surveying professionals already in the workplace. For example, Nelson and Steele (2007) investigated the relationship among worker training in EBP, clinical goal setting, attitudes towards research and self-reported EBP use. Apparently no similar studies have targeted social work trainees. The perceptions of social workers still in professional training - who presumably can still be persuaded to implement EBP after graduation - remain unknown. The failure to improve EBP implementation, despite our substantial knowledge of barriers, points to a need for greater focus on and understanding of factors predisposing social workers in training to commit to EBP implementation after graduation. This investigation's findings will contribute to such understanding. Besides adding to the growing body of knowledge in the area of EBP implementation, the practical application of findings from this study may aid in developing targeted and more effective ways to teach and communicate EBP, thus increasing and sustaining intention to implement EBP when students join the workplace.

The literature on EBP implementation indicates a growing interest in and potential of using human behavior theories and models to improve EBP implementation (Michie, Johnston, Abraham, et al. 2005; Bandura, 1998; Grol 1997). These models and theories focus on how EBP

or guideline implementation is affected by the individual worker's attitude, self-efficacy, and motivation, as well as how the worker thinks, learns, decides, and balances benefits and risks (Grol, 2004). Consistent with this evolving body of literature, this study will draw on the *Knowledge Attitude Practice (KAP)* model to assess whether students will report an intention to implement EBP after graduation based on such salient factors as their EBP knowledge, self-efficacy, outcomes expectancy and attitude (Cabana, 1999; Grol & Wensing, 2004).

**Assumptions.** A number of assumptions are made in this investigation. First, it is assumed that even though nonprobability sampling is used, respondents are fairly representative of MSW students nationwide. Respondents' profiles compare with the nationwide MSW students' profiles reported in the 2010 annual survey of social work programs (CSWE, 2011). Second, it is assumed that respondents' self-reports are relatively error-free. Third, any errors are assumed to be randomly dispersed. Finally, it is assumed that given current knowledge, EBP is the best approach to practice, research and education in social work, despite considerable debate on this issue.

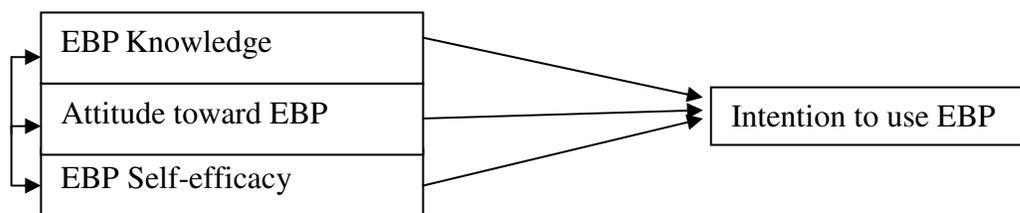


FIGURE 1. Model of causal relationship among variables

## CHAPTER III: METHODS

### Design

This correlational study used a self-administered online survey that was created with mrInterview 5.5 (2008), a software program allowing one to construct, manage and deploy surveys online. The software program is based on the Statistical Package for the Social Sciences (SPSS). The survey featured three sets of questions assessing the three independent variables, *EBP knowledge*, *attitude toward EBP* and *EBP self-efficacy*, while a fourth set of questions assessed the dependent variable *intention to implement EBP after graduation*. Two independent variables (i.e., *EBP knowledge and attitude toward EBP*) and the dependent variable (*intention to implement EBP*) used the same response scale with categories ranging from *Strongly Disagree* to *Strongly Agree*. The other independent variable (i.e., *EBP self-efficacy*) used a rating scale ranging from 0% to 100% to assess the respondents' confidence level in performing EBP-related tasks. Additionally, the survey featured 18 other questions designed to gather the respondents' demographic data. (See a sample of the survey, Appendix B.)

**Advantages of online surveys.** An online survey was used for this study because this data collection method has several potential advantages over traditional survey modes such as mail, telephone and face-to-face interviews. For populations with high internet use such as MSW students, online surveys can be easily developed and distributed with major savings in time, costs associated with in-person and telephone interviewing, and expenses associated with printing and mailing instruments (Kaplowitz, Hadlock & Levine, 2004; Scherpenzeel & Bethlehem, 2010). It was assumed that all MSW students either owned personal computers or had online access at school or in other locations.

According to Wright (2005), traditional paper questionnaires tend to be costly even when a relatively small sample is used; and costs can become enormous when a large-scale survey with mailed questionnaires is involved. Furthermore, advanced computer programs used in online surveys, such as the SPSS-based mrInterview in this study, can potentially capture in real time enormous quantities of quality data directly into electronic files, eliminating the need for costly separate data entry and cleaning (Selm & Jankowski, 2005). Other benefits of an online survey include the ease of providing information to respondents and the potential to eliminate interviewer and social desirability bias (Berrens et al. 2003). The online survey also allowed the researcher to potentially reach respondents from diverse geographic areas and diverse schools of social work nationwide.

Evans and Mathur (2005) identified the following advantages of online surveys: flexibility, which is the ability to be tailored to specific customer demographics and language; speed and timeliness; and technological innovations making possible randomized items and customized displays. These authors also listed as benefits of using web surveys the ability to control the order in which questions are answered and the required completion of answers before advancing to the next question.

However, a growing body of literature challenges some of the assumptions regarding online survey advantages over traditional methods. Despite indications that online surveys may not be as advantageous as previously thought (Fricker & Schonlau, 2002; Biffignandi, 2011; Selm & Kankowski, 2006), a web survey was considered the most appropriate information-gathering mode given this study's resource and time limitations.

**Limitations of online survey methodology.** Although online surveys are well suited for obtaining data describing attitudes, beliefs and behaviors, developing population profiles, and testing hypotheses derived from theory, the methodology presents serious challenges. Online surveys' main limitation is the inability to use probability sampling in selecting respondents. The lack of the online equivalent to random digit dialing (RDD), coupled with inconsistent internet use and capability, makes it impossible to develop a sample frame from which to draw a random selection of respondents (Dillman, Smyth & Christian, 2009).

A probability sample assigns a known probability of selection to every member of a population (Groves & Couper, 1998). However, because no email directory exists to help determine selection probability, drawing a probability sample from the web is difficult, and some would say impossible (Schonlau et al., 2002). This is a serious limitation because accurate or precise quantification of survey estimates is only possible with probability sampling (Dillman & Bowker, 2001). Without probability sampling, what can be accurately inferred from online survey data is limited, findings may be biased, and the quality of results compromised (Beimer, 2010; Scherpenzeel & Bethlehem, 2010).

The most serious methodological problems associated with online surveys include coverage, sampling, nonresponse, and measurement error. These problems appear to stem from the practical difficulties of obtaining random samples online. Although not unique to online surveys (Groves, 1989), these problems are more serious and difficult to address in web surveys precisely because using the principles of probability sampling is almost impossible.

Coverage error results when the sampling frame, a list of persons from which a sample is drawn, does not include elements of the population researchers wish to study (Groves, 1989). In online

surveys, coverage error partly stems from the difficulty of constructing a frame to select a random sample (Couper, 2000) because of inconsistent ownership or access to personal computers in the general population. Furthermore, those who own or have access to computers may lack adequate online skills, and/or may have incompatible hardware and software (Schonlau et al., 2002).

Sampling error in online surveys is a result of surveying only a portion of the target population yet making inferences about the entire population (Schonlau et al., 2002; Couper, 2000). According to Couper, while coverage error refers to people missing from the sampling frame, sampling error is a result of the difficulties of selecting a sample from the sampling frame. In internet surveys, selecting a sample from the frame is almost impossible because this process requires identifying everyone on the frame.

Nonresponse, a result of nonparticipation by potential responders who would have provided a different distribution of answers than responders, is another serious threat to online surveys (Dillman et al., 1998). However, nonresponse in web surveys is hard to define because the frame cannot be easily identified. To determine unit nonresponse or the response rate, the total number of those eligible to participate must be known in the form of either a probability or non-probability list of sample members (Manfreda, Berzelak & Vehovar, 2011).

Measurement error, the result of inaccurate answers that stem from survey-mode effects and the respondents' answering behavior, may be another serious problem in online and other self-administered surveys because unlike interviewer-administered questionnaires, trained interviewers are not available to answer questions, clarify unclear items and allay any confidentiality concerns (Couper, 2000).

Consequently, some researchers argue that because of these serious methodological challenges, online surveys produce scientifically inadequate data (Duda & Nobile, 2010). Suggestions to address these methodological issues include the use of large-panel and random panel assembly (Berrens et al., 2003) and mixed-method designs combining features of mail and the internet (Schaefer & Dillman, 1998). Using these methods in this study was impossible because of practical and cost considerations.

**Survey pilot testing.** The survey was pretested with the help of two masters-level classes, each with about 20 students, and three doctoral-student cohorts in the College of Social Work at the University of Tennessee. One MSW class was given the paper version of the questionnaire while the other was asked to complete the survey online. To avoid contaminating the sample, masters-level students invited to participate in the pilot test were instructed not to discuss the instrument with their classmates and not to participate later when the actual survey was distributed. Participating students were asked to complete the survey and provide feedback regarding the questions' wording, the instructions' clarity, and the general readability and comprehensibility. Additionally, the students completing the internet version were asked to assess whether all technical elements, such as scrolling through questions and drop-down menus, worked as intended.

Several minor typographical and spelling errors were corrected based on the students' feedback. Other changes included streamlining the pages and reducing the number of questions on each page. Most of the feedback pertained to the demographic questions, resulting in changes to the wording, length and categorization of items. Additionally, demographic questions were re-

programmed to allow respondents to skip sensitive items such as those relating to age, race and work experience.

Generally, students found the EBP self-efficacy instrument cumbersome because it required respondents to type or write an actual figure when rating on a scale of 0% to 100% the confidence level of their ability to perform 17 listed items. Students reported that typing a figure instead of clicking a bubble (or circling their choice in the paper version) was time-consuming and inconvenient. However, despite this feedback, the scoring of the instrument could not be altered because the scale's developers would not allow any changes. Pilot data were analyzed using SPSS Version 19 (2010). Descriptive statistics, graphical procedures such as histograms and scatter plots, and the internal consistency reliability of the scales as measured by coefficient alpha did not indicate any data problems.

**Validity.** Following the recommendations of Haynes, Richard and Kubany (1995), faculty experienced in teaching EBP-related classes and with an interest and expertise in EBP were asked to assess during pretest whether items that measured the outcome variable adequately represented the concept's domain. Draft copies of the instrument were given to faculty for review. Based on the faculty's verbal feedback, the wording on a couple of items was changed, and one item that appeared to be redundant was excluded from the final questionnaire. Faculty were given the opportunity to provide additional feedback after changes were made to the items. No additional changes were made to the items in the second review. Content validation was considered essential in this study because invalid instruments can over-represent, omit, or under-represent some facets of the construct and reflect variables outside the construct domain (Haynes et al., 1995).

**Survey distribution.** The survey was distributed through the National Association of Deans and Directors of Schools of Social Work (NADD) in an email letter with a hypertext link to the questionnaire (See Appendix C). The NADD national office distributed the survey to members using the organization's email listserv. Schools of social work deans and directors on the listserv were then invited to distribute the survey to all registered master's-level students in their respective programs. An email reminder with a link to the survey was distributed through NADD about a week after the initial email (See Appendix D). The reminder thanked those who had responded and invited those who had not to participate.

A low response rate to both the first email and reminder necessitated a slight change of plans. The second email, which was also the final reminder, was sent using a listserv culled from the CSWE website in an attempt to improve the response rate by including students from programs that were not members of NADD. Because of time constraints and no direct email contact with the students, sending a pre-notification email ahead of the survey and two reminders to improve the response rate as recommended by Salant and Dillman (1994) was not possible. By the time the survey was ready for distribution, it was too late in the semester to send the pre-notification, the survey itself and two reminders before the students went on summer break.

Initially the survey was intended to be distributed directly to the deans and directors using an e-mail list gleaned from the CSWE web site, but it was later deemed much more convenient to use the NADD listserv for several reasons. First, it was felt that an invitation to participate from a national organization such as NADD was likely to be perceived as official and therefore given more serious consideration than a letter directly from a student. Second, CSWE members could be reached in a cost effective way through NADD, whose members are drawn only from CSWE-

accredited institutions. Finally, using the NADD listserv was also necessary because the semester was ending and no time was left to try alternative ways that would have potentially missed the end of semester deadline.

**Population.** Master of Social Work students in CSWE accredited institutions and programs in CSWE candidacy in the United States were this study's population of interest. According to the CSWE 2010 Annual Survey on Social Work Programs report (CSWE, 2011), 48,384 master's students consisting of 29,191 full-time and 18,084 part-time students were enrolled in 209 accredited institutions and 33 candidacy programs (There is no explanation provided why the figures do not add up). However, the exact number of master's students is somewhat higher than 48,384 because this total excluded students from MSW programs that did not respond to the annual CSWE survey.

More than 86% of full-time MSW students were female and 86.7% of part-time students were female. The largest proportion (39.4%) of full-time students was 25 years old and under. The same report indicated that the largest proportion (27.2%) of part-time students was in the 26 to 30 year-old group. Master's programs had 32.4% full-time and 34.9 % students from historically underrepresented groups.

This study excluded students in non-CSWE accredited institutions and social work students in bachelor's and doctoral programs for three reasons. First, the Council for Higher Education recognizes CSWE (2010) as the sole accrediting agency for social work education in the US. The CSWE Commission on Accreditation (COA) is responsible for developing accreditation standards and policies that define competent social work preparation and for ensuring that social work programs meet these benchmarks. Second, the MSW is the most

common first degree at entry to the field, with 59% of licensed social workers entering the field with the MSW, according to a study by the Center for Health Workforce Studies and the National Association of Social Workers (NASW) Center for Workforce Studies (2006). Third, according to the same study, nearly four out of five (79%) active, licensed social workers have the MSW as their highest social work degree. Although the study cited was conducted in 2004, the figures are presumed to be relatively reflective of current reality.

**Sampling.** Self-selection or non-probability sampling was used due to the unique challenges arising from the lack of direct email contact with all students for constructing a sampling frame. Without a comprehensive email list of all students, probability or random sampling in which every element in the population has a known probability of selection was impossible. Consequently, minimum sample size and acceptable sampling error were not computed for this study because the underlying assumptions behind these calculations require a clearly defined population and known probabilities of selection (Dillman, Tortora & Bowker, 1998).

The main problem with non-probability sampling is that it limits accuracy of estimates and generalizability (Scherpenzeel & Bethlehem, 2010). However, Rubin and Babbie (2008) recommend convenience sampling in instances when random sampling is impossible or inappropriate. Furthermore, the methodology is appropriate and worth using in non-experimental research such as this investigation in which the aim is to see how variables correlate (Yoon & Horne, 2004).

**Recruitment of subjects and procedures.** Without direct contact with individual members of the sampling frame, recruitment of subjects was a two-step process. First, the survey

was sent to the deans and directors of CSWE-accredited MSW programs through the NADD. The second step was entirely in the control of these deans and directors, who in turn were asked to invite all currently enrolled MSW students in their respective programs to participate. A follow-up reminder was emailed about a week after the survey's deployment and a second and final reminder sent a week after the first. To avoid the perception of coercion, the email inviting students to participate and the survey itself included a formal consent statement.

**Institutional review, informed consent, confidentiality and anonymity.** This study complied with the Code of Ethics of NASW (2008) regarding human subject research. The University of Tennessee, Knoxville, institutional review board (IRB) granted approval for the study before the survey was distributed. Participants had to read an informed consent statement and agree to participate before proceeding to the survey (See Appendix A). Students who did not agree to participate after reading the consent statement were automatically denied access to the survey.

The informed consent statement provided details of the nature of the instrument and identified the researcher and his affiliation. Furthermore, the informed consent statement gave an estimate of the time needed to complete the survey, briefly described how data were to be used, and outlined potential risks of participating. Participants were notified that the information they provided would be confidential but that due to the nature of the medium, anonymity could not be guaranteed. Participants were also informed that the survey was voluntary, that they were free to quit at any time without penalty, and that participation entailed consent. Although students were informed that providing any identifying and contact information was not mandatory, participants could volunteer this information to facilitate potential follow-up.

## **Instruments**

The survey used in this study consists of three instruments to measure the independent variables: one instrument for the dependent variable, plus a set of demographic questions. Items measuring the three independent variables were drawn from two scales, one of which was originally developed for nursing practice and the other for use with medical students. Combining items from two different instruments was necessary because no scale was available that measured the variables of interest specific to the population being investigated.

**Knowledge, Attitude and Behavior (KAB) questionnaire.** Portions of the 25-item abbreviated *Knowledge, Attitude and Behavior* questionnaire (KAB) by Johnston, Leung, Fielding, Tin and Ho (2003) were used to operationalize the independent variables *EBP knowledge*, and *attitude towards EBP*. The self-report measure, originally designed for medical students in Hong Kong, has five subscales: EBP knowledge, attitude towards EBP, practice of EBP, actual use of EBP, and future use of EBP. However, only items from the EBP knowledge and attitude towards EBP subscales were used in the current study. The remaining three subscales, (*practice of EBP*, *actual use of EBP* and *future use of EBP*) were deemed inappropriate for this study.

The KAB questionnaire has Cronbach's alpha greater than 0.70 for the overall questionnaire as well as for each factor. The instrument uses a Likert-type scale ranging from: 1 (*strongly disagree*) to 6 (*strongly agree*). In the present study, seven items were selected to assess EBP knowledge and 10 items to assess attitude towards EBP. Sample items from this measure include "I have a clear understanding of what evidence-based practice social work is"

(*EBP knowledge*). “There is no reason for me to personally adopt EBP because it is just a ‘fad’ or ‘fashion’ that will pass with time” (*attitude towards EBP*).

Authors of the KAB used a four-step process to confirm its face and content validity. The first step was a thematic review of EBP educational assessment. The second step involved a focus group of fifth-year medical students that explored their experiences of EBP teaching. In the third step, a panel of international experts assessed preliminary questions and provided feedback related to face and content validity. In the fourth step, students evaluated the items for comprehensibility and relevance before a panel of experts reviewed the items for final reconfirmation of face and content validity.

**Evidence-Based Practice Self-Efficacy Scale (EBPSE).** The instrument measuring the EBP self-efficacy independent variable was the 17-item *Evidence-Based Practice Self-efficacy Scale* [EBPSE] (Tucker, Olson & Frusti, 2009) with Cronbach’s alpha values ranging from .95 to .98. The EBPSE scale’s validity was assessed by comparing scores of two cohorts of nurses from diverse settings and then examining scale sensitivity to change after participation in a formal training program on evidence-based nursing practice. Average scores did not differ significantly between cohorts at time one ( $t = .026, df = 91, p = 0.98$ ) or time 2 ( $t = 1.07, df = 78, p = .29$ ). Scores increased for all participants after receiving the content on clinical informatics from an average of 69.84 ( $SD = 18.56$ ) at time 1 to 78.56 ( $SD = 16.60$ ) at time 2 ( $t = - 4.06, df = 68, p = .000$ ). Average scores increased significantly ( $p < .005$ ) after participants completed the clinical informatics content and then further for cohort 2 after the EBP content was received at time 3.

The instrument allows respondents to rate how confident or sure they are of their ability to perform evidence-based activities, with scores ranging from 0% (not at all confident) to 100%

(completely confident or sure). Sample items from this measure include “Locate resources in my department and institution necessary to institute EBP change” and “Routinely ask questions about my practice.” The EBPSE instrument was originally developed for nursing practice, but was used in this study with social work students because no equivalent social work scale exists and because this scale seemed appropriate otherwise.

**Intention to use EBP scale.** Eight items theoretically associated with an intention to implement EBP were used to operationalize the dependent variable *intention to use EBP*. The eight items were developed specifically for this study. During the pilot-testing phase, the measure had a Cronbach’s alpha reliability score of .73, and most items had corrected item–total correlations greater than .5. The College of Social Work faculty with some experience teaching EBP were asked to assess to what degree the items covered the range of meanings included within the concept of intention to use EBP. Following procedures recommended by Rubin and Babbie (2008), the experts were asked prior to the pilot-testing phase to use their judgment to assess whether the eight items covered the universe of facets making up the concept.

### **Independent Variables**

In the present study, two of the three independent variables used in the model were coded in the following way:

1. Self-reported EBP knowledge and attitude towards EBP (1= *Strongly Disagree*; 2 = *Moderately Disagree*; 3 = *Disagree*; 4 = *Agree*; 5 = *Moderately Agree*; 6 = *Strongly Agree*). These two scales were scored by summing the items, with higher scores indicating greater EBP knowledge and positive attitude toward EBP respectively.

2. For the third independent variable, EBP self-efficacy (self-efficacy scale), respondents were asked to rate how confident or sure they were of their ability to perform evidence-based activities, with scores ranging from 0% (not at all confident) to 100% (completely confident or sure). The total score for this scale was computed by summing the item responses and dividing the number of items by the total number of items (17). Higher scores indicate greater confidence in ability to perform EBP-related activities.

### **Dependent Variable**

3. The last section of the instrument consisted of eight items forming the overall dependent variable, intention to use EBP. Items were coded 1 = *Strongly Disagree*; 2 = *Moderately Disagree*; 3 = *Disagree*; 4 = *Agree*; 5 = *Moderately Agree*; 6 = *Strongly Agree*. Items were summed to create the total score. Higher scores indicate a greater intention to implement EBP after graduation.

### **Data Collection**

MSW students received e-mail invitations to participate in the survey along with a link to the actual survey from their respective deans and program directors. Students were asked to complete the entire survey, not to share their responses and to complete just one survey each. Students could complete the survey at a place and time of their choice. Data were collected automatically in real time with the SPSS *mrInterview* program that instantaneously transformed the raw data into an SPSS Version 19 (2010) dataset. The program allowed the researcher to assess the data for problems and to subsequently correct problematic items. However, during the survey period, there were no problems that required changing item responses.

## CHAPTER IV: RESULTS

The results are presented in the following sections: (1) MSW students' demographic characteristics; (2) missing item responses; (3) internal consistency reliability; (4) intercorrelations among measures; and (5) multiple regression analysis. Please note that tables referred to in this chapter (Tables 1- 11) are in the Appendix.

### **Demographic Profile of the Participants**

A total of 212 master's-level social work students nationwide completed this survey representing about 57% of those who opened the survey. A total of 164 (43%) of those who opened the survey were timed out by the system, either because they decided not to complete the survey or technical glitches in the system made completing the survey impossible. According to the mrInterview technician providing technical support for this investigation, most of the timed-out participants are typically those who open the first page to look and then close the browser without completing a single question. The software automatically marks these incompletes as timed out. One person experienced an interview-system shutdown. The participant was likely in the process of completing the survey when the system was being rebooted.

As shown in Table 1, the majority of the participants (86%) were White/Caucasian and female (86 %). The participants' mean age was 31.66 ( $SD = 10.29$ ). Most of the participants had Psychology (26%) or Social Work (22.8%) undergraduate degrees. More than 50% of the participants had no prior paid social work experience. A relatively large number of the participants planned to work in mental health (21.0%) or child welfare (11.8%) after graduation.

### **Missing Item Responses**

All 212 students completed all the items on the four scales. Participants were allowed to skip certain demographic questions, such as race and age; and two participants did not report age.

### **Internal Consistency Reliability**

As shown in Table 2, Cronbach's alpha ranged from .81 to .95 for the four measures, indicating good to excellent internal consistency reliability. Corrected item-total correlations for the *EBP knowledge* measure ranged from .48 to .69 as shown in Table 3. Corrected item-total correlations for 9 of the 10 items on the *attitude toward EBP* scale ranged from .40 to .69, as shown in Table 4; but one item had a correlation less than .30. As shown in Table 5, corrected item-total correlations for *EBP self-efficacy* items ranged from .40 to .81. Finally, as shown in Table 6, corrected item-total correlations for the *intention to use EBP* scale ranged from .47 to .76.

The *EBP knowledge* measure total scale score has a potential range of 7 to 42, and higher scores indicate greater perceived knowledge of EBP. The mean *EBP knowledge* scale score was 35.23 ( $SD = 5.07$ ), suggesting that overall the participants rated their perceived EBP knowledge as high. However, an examination of skew and kurtosis indicated a significant negative skew and leptokurtosis in distribution of this scale's scores (Please see Table 7).

The *attitude toward EBP* measure has a potential total scale score range of 10 to 60, and higher scores indicate a more positive attitude towards EBP. The *attitude toward EBP* scale total mean score was 44.33 ( $SD = 7.11$ ), indicating that the participants' attitudes toward EBP were generally positive. An examination of this scale's skew and kurtosis indicated an approximately normal distribution (See Table 7).

The *EBP self-efficacy* scale has a potential range of values from 0 to 100, and higher scores indicate greater perceived confidence in ability to perform activities that support EBP. The scale's mean item score was 74.94 ( $SD = 15.99$ ), indicating that participants felt fairly confident of their ability to perform EBP-related activities. As shown on Table 7, however, the skew and kurtosis of the scale's distributions indicated significant negative skew and leptokurtosis.

The *intention to use EBP* scale has a potential range of values from 8 to 48, and higher scores indicate a greater intention to use EBP after graduation. The *intention to use EBP* scale total mean score was 34.44 ( $SD = 6.35$ ), suggesting that overall the participants intended to use EBP after graduation. As shown in Table 7, the item scores for intention to use EBP after graduation were high. An inspection of the skew and kurtosis for this scale indicated a normal distribution, which is especially important given that this is the dependent variable.

### **Correlations: Intention, Knowledge, Attitude and EBP Self-efficacy**

To assess the relationships among EBP knowledge, attitude toward EBP, EBP self-efficacy and intention to use EBP after graduation, the following hypotheses were tested:

- H1. MSW students who report that they know more about EBP are more likely to report an intention to implement EBP after graduation.
- H2. MSW students with positive attitudes toward EBP are more likely to report an intention to implement EBP after graduation.
- H3. MSW students who strongly believe in their ability to implement EBP are more likely to report an intention to use EBP after graduation.

As shown in Table 8, there was a statistically significant positive linear relationship between intention to use EBP after graduation and EBP knowledge ( $r = .41, p < .001$ ), attitude toward EBP ( $r = .60, p < .001$ ), and EBP self-efficacy ( $r = .34, p < .001$ ). Results of bivariate correlations supported all three hypotheses. In addition, attitude toward EBP, with an  $r$  value greater than .60, suggested a relatively stronger positive relationship between attitude toward EBP and intention to use EBP after graduation.

### **Main Independent Variables Multiple Linear Regression Analysis**

A simultaneous multiple regression analysis was conducted with intention to use EBP after graduation as the dependent variable and EBP knowledge, attitude toward EBP and EBP self-efficacy as independent variables. As shown in Table 9, the overall regression model was statistically significant [ $F(3, 208) = 49.03, p < .001, R^2 = .41, CI (.31, .51)$ ]. In the social sciences, 41 % of variance accounted for is a relatively large amount of variance (Keith, 2006). The combination of EBP knowledge, attitude toward EBP, and EBP self-efficacy accounted for 41% of the variance in intention to use EBP after graduation. All three hypotheses were supported as indicated by a statistically significant relationship between intention to use EBP after graduation and EBP knowledge [ $\beta = .20, t(211) = 3.55, p < .001$ ], attitude toward EBP [ $\beta = .48, t(211) = 7.93, p < .001$ ] and EBP self-efficacy [ $\beta = .13, t(211) = 2.27, p = .02$ ].

### **Demographic Variables Multiple Linear Regression Analysis**

In this study, the demographic variables *age in years*, *years of paid social work experience* and *internship status* (internship experience) were not hypothesized to be related to intention to use EBP after graduation. Nevertheless, it was necessary to assess whether the students' age, work experience and internship experience could be also related to intention to

implement EBP after graduation, and to control for these variables in the analysis of the three main independent variables of interest if necessary. A hierarchical multiple regression analysis was conducted with intention to use EBP after graduation as the dependent variable. The independent variables *age in years*, *years of paid social work experience* and *internship status* were entered into the model first. The main independent variables measuring knowledge, attitude and self-efficacy, were entered last.

As shown in Table 10, the overall regression model for the first step was not statistically significant [ $F(3, 207) = 1.42, p = .238, R^2 = .02, CI (.41, .60)$ ]. Age in years, years of paid social work experience and current internship status together accounted for about 2% of the variance in intention to use EBP after graduation. Results indicate no statistically significant relationship between intention to use EBP after graduation and age [ $\beta = .07, t(211) = 1.17, p = .25$ ], social work experience [ $\beta = .03, t(211) = -.46, p = .65$ ] and internship status [ $\beta = -.047, t(211) = -.88, p = .38$ ].

Finally, a regression analysis was performed with *intention to implement EBP* after graduation as the dependent variable and the independent variables knowledge, attitude and self-efficacy. As shown in Table 10, there was a statistically significant relationship among the three main independent variables and intention to implement EBP when controlling for the demographic variables [ $F(3, 204) = 49.03, p < .001, R^2 = .42, R^2 \text{ Change} = .40, CI (.31, .51)$ ]. More specifically, when controlling for demographic variables there was a statistically significant positive relationship between intention to use EBP after graduation and EBP knowledge [ $\beta = .20, t(207) = 3.41, p < .001$ ], attitude toward EBP [ $\beta = .47, t(207) = 7.77, p < .001$ ] and EBP self-efficacy [ $\beta = .13, t(207) = 2.17, p = .03$ ]. Please see Table 11 for the results

of the overall model with the main independent variables and the demographic variables entered in to the model at the same time.

**Strength of the relationships.** Keith (2006) suggests that standardized regression coefficients of .05, .10, and .25 can be considered small, medium, and large respectively. Although all three variables were statistically significant, Table 9 shows that not all variables were equally important in the regression model. Attitude toward EBP had a larger and statistically significant effect on intention to use EBP than the other independent variables. Each standard deviation increase in attitude toward EBP led to a .48 *SD* increase in intention to use EBP after graduation when controlling for EBP knowledge and EBP self-efficacy. EBP knowledge and EBP self-efficacy both had moderate effects on intention to use EBP after graduation. Each *SD* increase in EBP knowledge resulted in a .20 *SD* increase in intention to use EBP after graduation when controlling for attitude toward EBP and EBP self-efficacy. Each *SD* increase in EBP self-efficacy led to a .13 *SD* increase in intention to use EBP when controlling for attitude toward EBP and EBP knowledge.

**Simultaneous multiple regression assumption tests.** Linear multiple regression assumes a normal distribution of the dependent variable for each value of the independent variables, linear relationship between the dependent and independent variables, equality of variances, and independence of observations (Norusis, 2008). In addition, it is important to examine whether there are influential outliers or problematic levels of multicollinearity. A visual inspection of normal probability plots, histograms, frequency distributions, and the residuals indicated that the assumption of normality of conditional distributions in the population had not been violated. An examination of a scatterplot with the standardized predicted values on

the horizontal axis and studentized residuals on the vertical axis showed no evidence of inequality of variances or curvilinearity.

Cook's D was used to identify the presence of influential outliers. All values of Cook's D were less than 1. The highest Cook's D value was .53, indicating that there were no influential outliers. Tolerance values were examined to determine whether there were problematic levels of multicollinearity. Tolerance values for all three independent variables were greater than .70, indicating no problems with multicollinearity.

## CHAPTER V: DISCUSSION

This chapter will be divided into five sections. The first will provide an overview and summary of the study's findings as well as a restatement of the research questions, purpose of this study, and a brief review of the methods and procedures. The second section will consist of conclusions related to the research hypotheses; a more detailed consideration of the findings in the context of existing research literature; interpretation of results; and the implications for research, practice and education. The third section will discuss this study's strengths and limitations. The fourth section will discuss recommendations for future research. The fifth and final section will be a conclusion.

### Summary

The purpose of this study was to assess the extent to which MSW students' perceptions of EBP related to intention to implement EBP after graduation. These and perceptions of EBP were measured using three scales for the independent variables: *EBP knowledge*, *attitude toward EBP* and *EBP self-efficacy*. The *intention to use EBP after graduation* scale measured the dependent variable. A convenience sample of 212 participants completed the online survey distributed nationwide to CSWE-accredited MSW programs and programs in candidacy. Data were collected using the mrInterview program and were instantaneously transformed into an SPSS data set.

The study was concerned with the following questions: Is self-reported EBP knowledge associated with MSW students' intention to implement EBP after graduation? Is an MSW student's attitude toward EBP associated with intention to implement EBP after graduation? Is EBP self-efficacy associated with MSW students' intentions to implement EBP after graduation?

The specific research hypotheses were derived from the research questions above and tested using bivariate correlations and linear multiple regression.

## **Conclusions**

This section will summarize and discuss findings of each research hypothesis followed by a general discussion regarding the extent to which the results of this current study are consistent with previous research and a discussion of possible explanations for the findings. The last part will focus on potential implications for research, practice and education. However, given the present study's practical and methodological limitations (to be discussed in a later section), these conclusions are assumed to be tentative.

**EBP knowledge and intention to implement EBP after graduation.** The hypothesis that students self-reporting greater knowledge of EBP are more likely to report intentions to implement EBP after graduation was supported. Based on the data, perceived higher EBP knowledge among MSW students seems to increase the likelihood to report intentions to implement EBP after graduation. This finding is consistent with Aarons (2004), who found that interns and more educated social workers were more likely to indicate that EBP made sense, that it was intuitively appealing, and that they were more likely to report getting sufficient training in EBP. However, the Aarons' study provides a rather limited basis for comparison with the current study because most of the participants were already in the work place. No other known previous studies sampled MSW students to allow direct comparison with the current study. Studies involving social workers already in the work place (Bellamy, et al., 2008; Pagoto, 2007; and Proctor et al., 2007) indicated that unlike MSW students, workers perceived their EBP knowledge and training as inadequate. Practicing social workers cited lack of knowledge in the

form of training in the practical application of EBP, how to conduct searches for evidence related to client problems, and supervision in carrying out EBP related activities as the biggest barriers to implementation.

It is tempting to speculate on the reasons for the differences in how students and workers perceive their knowledge of EBP. One possible explanation is that MSW students misperceive and overstate their knowledge of EBP and EBP self-efficacy because they lack actual work experience. Research by Lichtenstein & Fishoff (1977) suggests that compared with experts, individuals with little knowledge of a topic are prone to misperceive or be over-confident of their knowledge. This explanation seems plausible only if experienced workers are characterized as experts in the implementation of EBP in work settings and students without work experience as novices.

Another likely explanation is that those joining the work place discover that their EBP knowledge is so general that it cannot be easily applied to the more complex and nuanced problems in practice situations. Once in the work place, the newly graduated social worker will likely find that practice problems in real life are often unclear and constantly shifting and that clients have multiple issues (Higa & Chorpita, 2007). Previous research also suggests that a novice social worker may struggle to implement EBP due to lack of time to appraise evidence, limited evidence for their specific practice problems, poor resources, no institutional support and relentless billing requirements (Aarons et al. 2009; Davies, Spears & Pugh, 2004; Parahoo, 2000). Furthermore, federal, state, and county policies and regulations together with contractual obligations may limit the implementation of certain EBPs in agency settings (Aarons, 2004).

The discrepancy between student and worker perceptions of EBP knowledge could also be accounted for by what Cook and Campbell (1979) term *hypothesis guessing*. Hypothesis guessing occurs when respondents try to predict how the experimenters expect them to behave or respond and subsequently report what reflects positively of their abilities, knowledge, beliefs and opinions. The role of hypothesis guessing cannot be ruled out in this study. Participating students may have felt compelled to provide positive feedback, assuming that admitting to limited knowledge or EBP self-efficacy would reflect badly on their abilities. Though hypothesis guessing is somewhat similar to the Hawthorne effect, Cook and Campbell argue that it is a unique product of self-report measures. More relevant to this study, hypothesis guessing is most common in educational and organizational settings.

It is equally likely that the differences in perceived knowledge of EBP between students and workers may have more to do with the subjective experiences of those who participated than actual differences in objective knowledge. Given the low response, it is possible that only those who perceived their knowledge of EBP and EBP self-efficacy as high and had a positive attitude toward EBP participated. It is likely that students and workers would get the same scores if objective measures of knowledge, self-efficacy and attitude were used. It is also likely that the majority of the students who did not participate, much like the workers, perceived their knowledge of EBP, EBP self-efficacy as low and endorsed negative attitudes towards EBP.

Finally, given that some of the previous studies were qualitative and used different measures, it is likely there is no common conceptualization of EBP knowledge or EBP training. Without a uniform definition of EBP knowledge, and the other variables in the current study, i.e. attitude and self-efficacy, these studies possibly assessed different constructs. For example, for

students, EBP knowledge possibly means being able to follow the EBP inquiry process to find and apply the best empirically validated evidence to address specific client problems as outlined by Gambriel (2003). However, for social workers in work settings, EBP knowledge may merely mean being trained in applying empirically validated interventions often referred to as *Evidence Supported Treatments/Therapies* (ESTs). Equally likely is that workers already in the field may be unsure about what the terms *EBP* and *EBT* actually mean (Aarons, 2004). As previously discussed, Drake et al. (2007) notes that even experts do not seem to agree on the definition of EBPs and ESTs.

**Attitude towards EBP and intention to use EBP after graduation.** The second hypothesis (MSW students with a positive attitude towards EBP are more likely to report intentions to implement EBP after graduation) was also supported. Data suggest that among MSW students, more positive attitude towards EBP leads to a greater likelihood to report intentions to implement EBP after graduation.

No other known study has used the KAB scale with MSW students to allow for direct comparison with the current study. However, if a comparison has to be made for illustration purposes, the mean attitude toward EBP scale score for the current study was high relative to both the highest possible score on the scale and to scores that Johnston et al. (2003) obtained among medical students, as shown in Table 12. The current study's findings appear to be in agreement with the only other published study (Aarons, 2004), which included a substantial number of students (24.9%); that study found that interns had more positive attitudes towards adopting EBP than professional providers. The current study's findings also appear to indirectly

support findings by Edmonds et al. (2006) and Rubin and Parrish (2008), who found 87% of field instructors and 73 % of MSW faculty viewed EBP favorably.

The current study's findings, when considered together with Aarons (2004), Edmonds et al. (2006) and Rubin and Parrish (2008), appear to highlight a serious conundrum in efforts to develop effective EBP implementation strategies. Those associated with educational institutions either as students or instructors, seemingly have more positive attitudes toward EBP in contrast to those already in the work place, who either have negative or mixed feelings towards EBP (Bostrom et al., 2007; Pagoto et al., 2007; Borntrager et al., 2009).

In the past, researchers have explored and exhaustively discussed reasons for the negative attitudes toward EBP among practicing social workers and other health professionals. However, because no other known studies have focused exclusively on MSW students' perceptions, the sharply contrasting attitude towards EBP among students and practitioners has not been widely addressed in the literature. The reasons for the apparent differences in attitude toward EBP are probably complex and worthy of speculation.

One possible explanation is that students and faculty, who are free from work place demands, may be more tolerant of and open to try new ideas than practicing social workers who are often constrained by heavy case loads, limited time, inadequate resources and organizational rules. Additionally, most agencies are now adopting a fee-based medical model that places a premium on billing (Bolen & Hall, 2007). Workers may have no incentive to engage in time-consuming and unbillable hours performing EBP-related activities. Moreover, intuitively it makes sense that faculty and field instructors to a lesser extent have a more positive attitude

towards EBP because faculty researchers develop, disseminate and promote most evidence-based interventions.

Yet another reason could be that newly graduated social workers' attitudes towards EBP gradually turn negative upon realizing that management, time and resource limitations do not support any EBP-related initiatives in their work setting. A more plausible explanation, though, is that a newly graduated social worker coping with adapting to the work place and to a new role is highly unlikely to make EBP implementation a priority because adaptation may be stressful and involve major changes in relationships, routines and assumptions (Koerin, Harrigan, & Reeves, 1990). Also worth noting is that newly graduated social workers entering the work place for the first time often feel less confident about their practical skills and preparation to work with certain groups. This is true even for those reporting satisfaction with university preparation in developing theoretical knowledge and understanding relevant for practice (Wilson & Kelly, 2010).

**EBP self-efficacy and intention to use EBP after graduation.** The third hypothesis tested, that MSW students who strongly believe in their ability to implement EBP [EBP self-efficacy] are more likely to report intentions to use EBP after graduation, was also supported. However, the relationship between self-efficacy and intention to use EBP after graduation was relatively small after controlling for knowledge and attitude. On the basis of this finding, it appears that MSW students who strongly believe in their ability to perform EBP-related activities are more likely to report intentions to use EBP after graduation than those with low perceived ability to implement EBP activities. However, the weaker relationship between self-efficacy and intention to use EBP (relative to attitude towards EBP) suggests that an intention to

use EBP may be more closely associated with attitude than perceived skill to perform evidence-based activities.

This finding is consistent with the literature (Bellamy et al. 2008; Pagoto, 2007; Bostrom, 2007) with respect to the self-efficacy variable's importance in the context of EBP implementation. However, what was unexpected was that unlike practicing social workers who perceived their EBP self-efficacy as low (Bellamy et al., 2008; Barwick et al., 2008), most MSW students reported their perceived ability to perform EBP-related activities after graduation as high. Though no other known published studies have used the EBPSE scale with MSW students, for illustration purposes, the current study's mean EBP self-efficacy scale score was relatively higher than scores obtained (Tucker et al., 2009) among nurses. Tucker et al.'s EBP self-efficacy scale scores subsequently went up after the nurses had received year-long EBP training.

A possible explanation for this finding is that the current study's questionnaire only assessed subjective self-efficacy. Upon entering the work place new social workers realize they have to deal with not only complex individual client problems but also organizational constraints, such as time, resources and regulations. According to Peterson (1991), students in academic settings are free to choose issues to examine. Consequently, dealing with less defined and multi-faceted problems may be a challenge for novice workers accustomed to tackling precisely defined and context-free problems in educational settings. New social workers find that real practice problems cannot be precisely defined and operationalized, and that each client's problems must be addressed within a specific political/social context requiring certain actions and prohibiting others. Additionally, Peterson notes that unlike problems encountered in research

and educational settings, practice problems defy manipulating or removing factors that potentially may complicate, contaminate, or confound the helping process.

In previous studies (Bellamy, Bledsoe, & Traube, 2006; Nelson, Steele, & Mize, 2006), practitioners reported that most evidence-based interventions could not be easily altered to fit their specific practice and population without compromising efficacy. The differences in perceived EBP self-efficacy between students and workers may not be surprising given that in work place settings practitioners have to address highly specific problems within a specified time frame. Students in training typically do not face these constraints; they deal with relatively generic problem scenarios with no active client input. Without any experience applying EBP to real-world settings, students may likely over-estimate their ability to perform EBP-related activities.

### **Implications for Theory**

Adopting EBP as social work's favored framework for practice and education is a relatively recent event in the context of the profession's history. Consequently, efforts to devise models and theories to develop sustainable EBP implementation strategies are ongoing within social work and other health-related fields. Some of these models focus on individual professional attributes, such as attitude, education, cognition, and motivation, to identify barriers to EBP implementation (Grol & Wensing, 2004). Most of these models were developed in fields other than social work and can be classified in numerous ways. However, because these models originated outside social work and other helping professions, there is no agreement as to which work best and whether some of these models can be used appropriately to develop effective EBP-implementation strategies. Furthermore, according to Grol and Wensing, the ability of most

of these models and theories to help develop appropriate EBP implementation strategies is yet to be supported by scientific research.

Within this context, the current study's findings appear to support the use of theories and models focusing on the individual professional to develop useable strategies for EBP implementation. Consistent with these models, the current study provides some evidence that the intention to use EBP after graduation is in part influenced by the individual professional's perceptions (knowledge, attitude and self-efficacy). This indication appears to suggest that any successful EBP implementation theories and models must take into account the individual worker's attributes.

These findings also seem to indirectly show that models focusing on the organizational social context and environment may hold potential in developing EBP implementation strategies. As previously stated, industrial psychologists originally developed the concepts of organizational culture and climate. The current study's findings appear to provide indirect justification for using these theories to develop mechanisms for successfully implementing social work innovations such as EBP.

Data showing that students' EBP perceptions differ from workers' suggest that the work environment also plays a major role in whether EBP activities are supported in practice. A novice worker determined to implement EBP in a new workplace may make little headway because an agency's social context determines interpersonal relationships, norms, expectations, perceptions, attitudes, and other psychosocial factors that govern how organizational members approach their work (Glisson, 2002). According to Glisson, an organization's social context also determines the new employee's interaction with others in the organization, interpretation of the

work environment, collaboration with members of “referent” organizations, and feelings about the new job. Using organizational context-based models to craft EBP implementation strategies is important because of anecdotal data suggesting that an organization’s environment determines whether the best practices and most innovative service protocols are adopted, how they are implemented and whether they are sustained and effective (Glisson, Dukes & Green, 2006).

Considering that these results support the use of two different theoretical perspectives, it seems fair to conclude that the findings imply that a combination of models and theories may be needed to develop effective EBP implementation strategies. Instead of focusing on one theory or model, the current study indicates that models and theories that facilitate a deeper understanding of how the organizational context affects a new worker and individual professional attributes may contribute to the development of sustainable EBP implementation strategies. Using a combination of models and theories to develop appropriate EBP implementation strategies will also be consistent with previous studies (discussed in earlier sections) indicating that barriers to implementation involved multiple levels within an organization and various outside stakeholders.

### **Implications for Education**

The current study has several implications for social work education. Perhaps the most surprising finding for this study was the relatively stronger positive relationship between attitude toward EBP and intention to use EBP after graduation. This finding appears to imply that social work education’s focus on the methodological and technical aspects of EBP may not be enough to improve MSW students’ intention to implement EBP after graduation. Therefore, besides emphasizing scientific validation of the evidence for new interventions, the finding suggests

social work education and research may also have to pay more attention to the general appeal of EBP innovations to foster a more positive attitude towards EBP.

MSW students' perceived high EBP knowledge, the reported positive attitude toward EBP and high perceived EBP self-efficacy at first seem to be positive signs of the effectiveness of how EBP is currently taught. However, the current findings raise troubling questions given that the findings appear to contradict past studies involving workers (Pagoto et al., 2007; Bostrom, et al., 2007). For example, is it possible that what students perceive as EBP knowledge may actually be irrelevant for real-world practice? How can agency staff with perceived little knowledge of EBP and a negative attitude toward EBP be field instructors and supervise MSW interns? This study does not address these questions, but points to a need to reevaluate how EBP is incorporated into field education instruction so that agency personnel's perceptions of EBP knowledge, EBP self-efficacy and attitude towards EBP are consistent with the perceptions of students they supervise.

### **Implications for Practice**

The perceived high EBP knowledge, high EBP self-efficacy, and generally positive attitudes toward EBP among MSW students appear to justify some optimism regarding EBP's future role in social work. The finding indicating that most MSW students intend to implement EBP after graduation seems to highlight a need for agencies to have clearly delineated procedures and policies enabling newly graduated social workers to easily incorporate EBP principles upon entering work settings. Although incorporating EBP and sustaining it in regular practice will take much more than an intention, these findings can be used as a basis and

justification for developing policy and practical mechanisms for sustainable EBP-based service delivery.

This study's findings also suggest that there is need for more collaborative efforts between educators who develop new innovations, agency leaders, frontline workers and students to foster a common understanding and acceptance of EBP implementation among stakeholders. Such collaboration will likely aid in developing appropriate interventions and facilitate a more positive attitude towards EBP implementation. Given that workers often complain that some EBP interventions are not applicable in real practice, greater cooperation among stakeholders would make it easier to alter new innovations using frontline workers' feedback. Such cooperation would result in user-friendly interventions that more appropriately address specific client problems.

Giving field instructors, agency managers, frontline workers and interns the same training in EBP may help eliminate the disconnect between what the students learn in the classroom and the reality of trying to implement EBP in agency settings. Joint training of stakeholders would allow educators to consistently emphasize the importance of implementing EBP in practice. Additionally, this study highlights the need for consistency in efforts to increase EBP knowledge and improve attitudes towards EBP and consequently, encourage the wider use of new innovations and scientifically proven interventions in practice settings. Existing field instruction arrangements and programs can be easily harnessed to facilitate these efforts.

This is not the first study to highlight the need for developing greater cooperation between educators and other stakeholders. Results obtained by other researchers (Edmond et al., 2006; Bellamy et al., 2008) also have pointed to a need to develop more positive attitudes toward

EBP implementation, consistent efforts to emphasize the potential benefits of using proven interventions and more robust programs to train managers to invest in incorporating new interventions into routine practice.

## **Limitations**

Necessary care has to be taken in considering these results given several practical and methodological limitations that may have affected the current study's findings, validity and generalizability. This section will discuss the limitations related to methodology, instruments and practical issues that may have either provided a different distribution of responses or affected the results of this study's results in some way.

**Limitations related to methodology.** The sample's representativeness is unknown due to the use of convenience sampling. Therefore, caution is needed in interpreting the results to avoid overgeneralizing findings beyond the study's participants. The potential danger with using convenience sampling in this study was that only those who felt strongly about EBP participated. Consequently, the views of those who do not particularly care about EBP either way would have been excluded. Any big difference between the nonrespondents and respondents with respect to variables of interests could potentially have biased the results.

Relying on non-probability sampling greatly increased the risk of sampling, coverage, nonresponse, and measurement error. In the current study, any of these errors may have compromised the survey results in such a way that the findings do not truly reflect the MSW student population. However, based on an evaluation of demographic variables whose data were comparable to available CSWE figures, the participants' demographic profile appears to be somewhat close to the MSW students' national demographic profile.

The current study's cross-sectional research design can be considered another considerable limitation. Although the design enabled examination of variables associated with intention to implement EBP after graduation at a specific time in the lives of MSW students, the methodology permits neither manipulating the independent variables nor establishing cause and effect. According to Rubin and Babbie (2008), this methodology's major weakness is that it typically aims to understand causal processes that occur over time, yet conclusions are based on observations made at only one time.

**Limitations related to instruments.** Consistent with George and Mallery (2003), this study had good to excellent internal consistency reliabilities and generally good corrected item-total correlations except for one item on the attitude toward EBP scale that had a value of .27. The relatively low corrected item-total value indicates that the item does not really fit well with the other items on the scale, potentially raising questions regarding the reliability and validity of the measures. However, a more likely explanation for the low corrected item-total value is that the item was poorly worded and, consequently, confusing. This item highlights the problems inherent in using scales developed in other fields. The item in question was not dropped from the analysis because the literature indicates it is theoretically associated with attitude toward EBP. In any case, excluding the item would only have resulted in a relatively small improvement in the overall reliability score, from .816 to .823.

The current study only assessed perceptions and not objective EBP knowledge, attitude toward EBP and EBP self-efficacy. Although a growing body of literature indicates that self-reported measures of knowledge correspond to actual knowledge, a debate is ongoing. Similarly, there is no agreement regarding the relationship between self-reported attitude and actual

behavior. Though most of the students self-reported that they intended to implement EBP after graduation, it is impossible to tell whether their self-reports will actually be consistent with behaviors after they graduate. On the basis of a review by Eccless et al. (2006), there is hope that students' reported intentions to implement EBP after graduation will correspond with behavior. Eccless et al. reviewed 10 studies examining the relationship between intention and clinical behaviors among medical and other health-related clinical staff and found some correspondence between self-reported intention and actual behavior. However, related methodological concerns regarding intention-behavior research remain. For example, Chandon, Morwitz, and Reinartz (2005) argue that it is possible that the very act of measurement may inflate the association between intentions and behavior. In the current study, the intention-behavior limitation is a result of using a cross-sectional design, which only allows a one-time assessment of the study participants.

The selection of variables and instruments used in this study was guided by the theoretical assumptions of models such as the "professional perception model" (Cabana et al., 1999), which focus on individual professional attributes key to facilitating or impeding EBP's implementation. However, one possible limitation is that several variables associated with these approaches were not included in this study for various reasons. For example, this study only assessed what are sometimes termed predisposing variables (knowledge, attitude and self-efficacy). Enabling factors such as the *behavior of others*, the *opinions of others* and the *influence of others* were excluded because it seemed inappropriate to include these variables in relation to students not yet in the work place.

*Lack of agreement*, a variable also closely associated with the “professional perception model” (Cabana et al., 1999), was not assessed in this study. According to Cabana et al., lack of agreement manifests itself in the following ways: disagreeing with the interpretation of the evidence, the belief that the benefits were not worth patient risk, discomfort, high cost, applicability to the practice population, belief that guidelines were oversimplified or “cookbook” and that guidelines reduced autonomy, the lack of author credibility and the perception that the authors were biased. This variable was excluded because it was also deemed more appropriate for those already in the work place.

Other variables excluded from this study include *low expectancy of favorable outcome*, *lack of motivation* and *perceived external barriers* beyond the control of the individual. Low expectancy of a favorable outcome and perceived external barriers beyond the control of the individual were excluded from this study because they are clearly more applicable to work settings. For this study, motivation was characterized as the driving force that influences individuals' choices about which tasks to do, the persistence with which they pursue these tasks, the intensity of their engagement in these tasks, and their thoughts about their performance and their goals (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2007). On the basis of this conceptualization of motivation, it seemed assessing motivation before the students joined the work place would be meaningless.

This study's results must be considered preliminary because the instruments' reliability and validity have not been adequately assessed. Besides the original developers of the KAB and EBPSE, no other researchers are known to have published studies that used the two instruments. The basis for comparing these results to those of other studies is limited until these scales'

validity and reliability are thoroughly assessed and more researchers have used these scales with MSW students.

Finally, the use of instruments originally designed for nursing and medicine was a considerable disadvantage. Making all the items that measured EBP knowledge and attitude toward EBP fully compatible with social work terminology was impossible because the items were originally intended for medical students. There were some problems with the EBP self-efficacy scale as well because it was originally developed for nurses. The EBPSE's original authors would not permit any changes besides substituting the words *social work* for the word *nurse*. Pre-testing feedback indicated that the wording of some items was either awkward or incomprehensible, potentially resulting in measurement and item-nonresponse error. The authors also would not allow any changes to the way the instrument was scaled. Based on the feedback during pre-testing, most students found typing an actual figure instead of clicking on a bubble cumbersome. Again this problem could have resulted in measurement error. The refusal to permit either changes or deletion of items meant that some items may have seemed irrelevant to social work students.

**Practical limitations.** The response to the survey was low. Although a response rate could not be calculated due to lack of a sampling frame, this study's results might have been different with greater participation. The low response could be partly attributed to the fact that the questionnaire was distributed a few days before the semester ended, the relatively large number of people and institutions involved in distributing the survey, and the inability to verify whether all the institutions had forwarded the survey to their students. It may be interesting to speculate on characteristics of students who completed the survey at such a busy time. Anecdotal

evidence in the literature suggests that those who prefer email surveys may be more tech savvy than their counterparts. In the current study it is plausible that those who participated felt strongly about EBP, were proactive and generally interested in implementing interventions based on science.

Another potential cause of the low response could have been some communication problems earlier in the distribution process. The first letter inviting students to participate in the survey was supposed to have a link to the actual online questionnaire, but the email was sent without a hypertext link. Without this link, students received the email but were unable to access the actual survey. Hundreds of potential participants were likely denied the chance to respond to the survey because of this error.

Distributing the survey through deans and directors of MSW programs presented another potential limitation. Although this was an online survey that students could complete at any time in privacy, there is a remote possibility that some of the students who would not have necessarily participated felt compelled to do so because the invitation to take part came from authority figures. A related problem is that students completing the questionnaire using school facilities could never be absolutely sure that responses would remain anonymous. In fact, Couper (2000) noted that most institutions monitor and store all incoming and outgoing data. This problem potentially compelled some students not to participate. Couper stated that potential respondents' concerns regarding monitoring of electronic mail limited responses, particularly for sensitive topics. Evans and Mathur (2005) noted other concerns related to potentially intrusive programs monitoring respondent activities such as answering patterns; browsers used; and the user's Internet Protocol (IP), a computer's unique numeric address on the internet that enables

identification of the user. Although no evidence indicates that such concerns were a problem in the current study, they were nevertheless a possibility.

Although the online survey mode allows programming that makes navigating through the questionnaire easier for participants, it is nevertheless a highly structured, standardized and one-way form of communication. Participants' comments clearly indicated that a few students greatly misunderstood some of the questions while others appeared to believe that some questions were either too narrow or too broad. These issues would not have been a problem in a person-to-person, telephone or paper questionnaire because the participants could seek clarification; and in the case of paper questionnaires, participants could clarify their responses.

A somewhat different but closely related problem was highlighted by one case in which a student intending to go into macro practice commented that the questionnaire did not really apply to her because she believed EBP was exclusively for those majoring in micro practice. Although this was a single case, it raised questions about the accuracy of some responses. A sizeable number of participants may have completed the survey without any appreciation of EBP's basic principles.

### **Strengths of the Current Study**

Despite the use of scales from other disciplines and the resultant problems with word clarity and comprehensibility, the scales had good to excellent internal consistency reliabilities, and the corrected item-total correlations for all but one item were generally good. Also, the relationships among the variables measured by the scales were as predicted from theory and previous research. The data show that although the scales were adapted from other fields, they were nevertheless appropriate for use with this population. The validity of the scales was

supported by the expected relationships. Though tentative, this study contributes to the social work knowledge base and theory by providing useful insights into how the MSW students' perceptions of EBP in the form of knowledge, attitude and self-efficacy relate to intention to use EBP after graduation. These insights can be the basis for more rigorous studies.

### **Recommendations for Future Research**

The results of the current study and its limitations point to several directions for future study. It may be useful to replicate the study using a probability sample so that the survey estimates are accurately quantified, and to allow the results to be generalized to the entire population of MSW students. Although getting a random online sample of MSW students might be difficult, it may be feasible with adequate time and resources and in collaboration with colleges of social work and organizations such as NADA and CSWE.

If this study's replication with a random sample confirms these findings, it would be interesting to conduct a longitudinal study following up the MSW students in the workplace after graduation. Such a longitudinal study would establish whether the students' self-reported high EBP knowledge, self-efficacy, positive attitude toward EBP and intention to use EBP after graduation remain the same after they join the workplace. That approach would be one way to establish whether these subjective measures correspond with actual behavior.

Such a study could also help explain what accounts for the sharp contrast between how social workers in work settings and MSW students perceive EBP and would be important given that previous research indicates workers have a generally poor attitude toward EBP and perceive their EBP knowledge and skills to be low. Explaining this contradiction would be particularly

important considering that some of the social workers already in the field went through the same programs as the students and that some of them may actually be MSW field supervisors.

It may also be necessary to develop a common definition of EBP knowledge, attitude toward EBP, EBP self-efficacy and intention to use EBP after graduation to ensure that researchers are referring to the same constructs. As previously stated, at this time no common definition for these constructs exists, making it somewhat difficult to compare studies.

## **Conclusion**

Despite several limitations, the current study is one of the few known to have assessed the EBP perceptions of MSW students from across geographically diverse schools of social work nationwide. Although a relatively large number of studies related to EBP implementation barriers and facilitators have been conducted in social work and other health-related fields, previous research focused on those already in the work place. This study helps fill the gap in the literature by focusing on MSW students who constitute a major stakeholder group for developing sustainable EBP implementation mechanisms. Understanding how MSW students perceive EBP may help not only create appropriate and sustainable mechanisms to implement EBP in work settings but also develop effective ways to teach EBP both in the classroom and in the field. The EBP's successful implementation remains an important component of the social work profession's goal to base all practice on scientific evidence. More importantly, EBP implementation will ensure that clients receive evidence-based interventions.

## LIST OF REFERENCES

- Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practices: The Evidence-Based Practice Attitude Scale (EBPAS). *Mental Health Services Research*, 6, 61-74.
- Aarons, G. A., & Palinkas, L. A. (2007). Implementation of Evidence-based practice in child welfare: service provider perspectives. *Administration and Policy in Mental Health and mental Health Services Research*, 34, 411-419.
- Aarons, G.A., Wells, R. S., Zagursky, K., Fettes, D. L., & Palinkas, L, A. (2009). Implementing evidence based practice in community mental health agencies: A multiple stakeholder analysis. *American Journal of Public Health*, 99, 2087-2096.
- Asen, E. (2002). Multi-family therapy: an overview. *The Association for Family Therapy & Systemic Practice*, 24, 3-16.
- Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and Health*, 13, 623-649.
- Barratt, M. (2003). Organizational support for evidence-based practice within child and family social work: a collaborative study. *Child and Family Social Work*, 8, 143-150.
- Barwick, M. A., Boydell, K. M., Stasiulis, E., Fergusson, H. B., Blasé, K., & Fixsen, D. (2008). Research utilization among children's mental health providers. *Implementation Science* 3:19. Retrieved May 12, 2010 from:  
<http://www.implementationscience.com/content/3/1/19>
- Beck, J. S., & Tompkins, M. A. (2007). Cognitive Therapy. In N. Kazantzis & L. L'Abate (Eds.), *Handbook of Homework Assignments in Psychotherapy, Research, and Prevention* (pp. 51-63). New York: Springer USA.

- Biemer, P. P. (2010). Total survey error: Design, implementation and evaluation. *Public Opinion Quarterly*, 74, 817-848.
- Bellamy, J. L., Bledsoe, S. E., & Traube, D. E. (2006). The current state of evidence-based practice in social work: A review of the literature and qualitative analysis of expert interviews. *Journal of Evidence-Based Social Work*, 3, 23-48.
- Bellamy, J. L., Bledsoe, S. E., Mullen, E., Fang, L., & Manuel, J. I. (2008). Agency–university partnership for evidence-based practice in social work. *Journal of Social Work Education*, 44 (3), 55-75.
- Berg, N. (2005). Non-response bias. In K. Kempf-Leonard (Ed.), *Encyclopedia of Social Measurement* (Vol. 2, pp. 865–73). London: Academic Press.
- Berrens, R. P. Bohara, A. K., Jenkins-Smith, H., Silva, C., & Weimer, D.L. (2003). The advent of internet survey in Political research: A comparison of telephone and internet samples. *Political Analysis*, 11(1), 1-22.
- Biffignandi, S. (2011). Internet survey methodology: Recent trends and developments. *International Encyclopedia of Statistical Science*, 9, 679-682.doi: 10.1007/978-3-642-04898-2\_307
- Bilsker, D., & Goldner, E. (2004). Teaching Evidence-based practice: Overcoming barriers. *Brief Treatment and Crisis Intervention*, 4, 271-275.
- Bolen, R. M., & Hall, J. C. (2007). Managed care and Evidence-Based Practice: The untold story. *Journal of Social Work Education*, 43, 463-479.

- Booth, S. H., Booth, A., & Falzon, L. J. (2003). The need for information and research skills training to support evidence-based social care: a literature review and survey. *Learning in Health and Social Care*, 2, 191-201.
- Borntrager, C. F., Chorpita, B. F., Higa-McMillan, C., & Weisz, J. R. (2009) Provider attitudes toward evidence-based practices: are the concerns with the evidence or with the manuals? *Psychiatric Services*, 60, 677-681.
- Bostrom, A., Wallin, L. and Nordstrom, G. (2007). Evidence-based practice and determinants of research use in elderly care in Sweden. *Journal of Evaluation in Clinical Practice*, 13, 665-673.
- Cabana, M.D., Rand, C. S., Powe, N. R., Wu, A.W., Wilson, M. H., Abboud, P. C. et al. (1999). Why don't physicians follow clinical guidelines? A framework for improvement. *JAMA*, 282, 1458-1467.
- Cahalane, H., & Sites, E. W. (2008). The climate of child welfare employee retention. *Child Welfare*, 87, 97-114.
- Carrion, M., Woods, P., & Norman, I. (2004). Barriers to research utilization among forensic mental health nurses. *International Journal of Nursing Studies*, 41, 613-619.
- Center for Health Workforce Studies, University at Albany Rensselaer & National Association of Social Workers (2006). *Licensed Social Workers in the U.S., 2004*. Retrieved from <http://workforce.socialworkers.org/studies/intro0806.pdf>
- Champion, V. L., & Leach, A. (1989). Variables related to research utilization in nursing: an empirical investigation. *Journal of Advanced Nursing*, 14, 705-710.

- Chandon, P., Morwitz, V. G., & Reinartz, W. J. (2005). Do intentions really predict behavior? Self-generated validity effects in survey research. *Journal of Marketing*, 69, 1-14.
- Cook, J. M., Biyanova, T., & Coyne, J. C. (2009). Barriers to adoption of new treatments: An internet study of practicing community psychotherapists. *Administration and Policy in Mental Health and Mental Health Services Research*.36, 83-90.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-Experimentation: Design & analysis issues for field settings*. Boston, MA: Houghton Mifflin.
- Council on Social Work Education, (2008). *Educational Policy and Accreditation Standards*. Retrieved from <http://www.cswe.org/File.aspx?id=13780>
- Council on Social Work Education, (2010). *Commission on Accreditation*. Retrieved from <http://www.cswe.org/About/governance/CommissionsCouncils/CommissiononAccreditation.aspx>
- Council on Social Work Education, (2010). *Annual Report 2009/2010*. Retrieved from <http://www.cswe.org/File.aspx?id=46133>
- Couper, M. P. (2000). Web surveys: A Review of issues and approaches. *Public Opinion Quarterly*, 64, 464-494.
- Crane, J., Pelz, D., & Horsley, J. A. (1977). *CURN project research utilization questionnaire*. Ann Arbor, MI: Conduct and Utilization of Research in Nursing Project, School of Nursing, University of Michigan.
- Davies, M., Spears, W. & Pugh, J. (2004). What VA providers really think about clinical practice guidelines. *Federal Practitioner*, 21(2), 15-30.

- DeVellis, R. F. (1996). A consumer's guide to finding, evaluating, and reporting on measurement instruments. *Arthritis & Rheumatism*, 9, 239-245.
- Dillman, D. A. (1991). The design and administration of mail surveys. *Annual Review of Sociology*, 17, 225-249.
- Dillman, D. A. & Bowker, D. K. (2001). The web questionnaire challenge to survey methodologists. Retrieved from <http://www.sesrc.wsu.edu/dillman/papers/2001/thewebquestionnairechallenge.pdf>.
- Dillman, D. A., Smyth, J. D. & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*, 3rd Edition, Hoboken, NJ: John Wiley & Sons.
- Drake, B., Jonson-Reid, M., Hovmond, P. & Zayas, L. H. (2007). Special Section: Promoting and sustaining Evidence-Based Practice adopting and teaching Evidence-Based Practice in Master's-level social work programs. *Journal of Social Work Education*, 43, 431-446.
- Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L. et al. (2001). Implementing dual diagnosis services for clients with severe mental illness. *Psychiatric Services*, 52, 469-476.
- Duda, M. D., & Nobile, J. L. (2010). The fallacy of online surveys: No data are better than bad data. *Human Dimensions of Wildlife*, 15, 55-64.
- Edmond, T., Megivern, D., Williams, C., Rochman, E., & Howard, M. (2006). Integrating evidence-based practice and social work field education. *Journal of Social Work Education*, 42, 377-396.
- Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research*, 15, 195-219.

- Evidence-Based Working Group. (1992). Evidence-based medicine: A new approach to teaching the practice of medicine. *Journal of the American Medical Association*, 268, 2420-2425.
- Festinger, L. (1964). Behavioral support for opinion change. *Public Opinion Quarterly*, 28, 404-417.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley Publishing Company.
- Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature* (FMHI 231). Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network.
- Forsner, T., Hansson, J., Brommels, M., Wistedt, A. A., & Forsell, Y. (2010). Implementing clinical guidelines in psychiatry: a qualitative study of perceived facilitators and barriers. *BMC Psychiatry*, 10:8. Retrieved May 25, 2010 from <http://www.biomedcentral.com/1471-244X/10/8>
- Fricker, R. D., & Schonlau, M. (2002). Advantages and disadvantages of internet research survey: Evidence from the literature. *Field Methods*, 14, 347-367.
- Funk, S. G., Champagne, M. T., Wiese, R. A., & Tornquist, E. M. (1991). Barriers: The barriers to research utilization scale. *Applied Nursing Research*, 4, 39-45.
- Funk, S. G., Champagne, M. T., Wiese, R. A., & Tornquist, E. M. (1995). Barriers and facilitators to research utilization: an integrative review. *Nursing Clinics of North America*, 30 (3), 395-407.
- Gambrill, E. (2003). Evidence Based Practice-Sea Change or the Emperor's New

- Clothes? *Journal of Social Work Education*, 39, 3-23.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.
- Gershon, R.M., Stone, P.W., Bakken, S., & Larson, E. (2004). Measurement of organizational culture and climate in healthcare. *Journal of Nursing Administration*, 34, 33-40
- Gioia, D., & Dziadosz, G. (2008). Adoption of Evidence-based practices in community mental health: A mixed-method study of practitioner experience. *Community Mental Health Journal*, 44, 347-357.
- Gilgun, J. F. (2005). The four cornerstones of Evidence-Based Practice in Social Work. *Research on Social Work Practice*, 15, 52-61.
- Glisson C. (2002). The organizational context of children's mental health services. *Clinical Child and Family Psychology Review*, 5, 233-253.
- Glisson, C., Dukes, D., & Green, P. (2006). The effects of the ARC organizational intervention on caseworker turnover, climate, and culture in children's service systems. *Child Abuse & Neglect*, 30, 855-880.
- Glisson, C., Landsverk, J., Schoenwald, S., Kelleher, K., Hoagwood, K. E., Mayberg, S., et al. (2008). Assessing the Organizational Social Context (OSC) of mental health services: Implications for research and practice. *Administration and Policy in Mental Health and Mental Health Services Research*, 35, 98-113.
- Grol, R. (1997). Beliefs and evidence in changing clinical practice. *BMJ*, 315, 418-421.

- Grol, R. & Wensing, M. (2004). What drives change? Barriers to incentives for achieving evidence-based practice. *Medical Journal of Australia*, 180, S57-S60.
- Groves, R. M. & Couper, M. P. (1998). *Nonresponse in household interview surveys*. New York: Wiley.
- Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, 3, 238-247.
- Higa, C. K., & Chorpita, B. F. (2007). Evidence-based therapies: Translating research into practice. In R. G. Steele, T. D. Elkin, & M. C. Roberts (Eds.), *Handbook of evidence-based therapies for children and adolescents: Bridging science and practice* (pp.45-61). New York: Springer-Verlag.
- Johnston, J. M., Leung, G. M., Fielding, R., Tin, K. Y. T. & Ho, L. (2003). The development of a knowledge, attitude and behavior questionnaire to assess undergraduate evidence-based practice teaching and learning. *Medical Education*, 37, 992-1000.
- Kanwar, R., Grund, L., & Olson, J. C. (1990). When do the measures of knowledge measure what we think they are measuring? *Advances in Consumer Research*, 17, 603-608.
- Kaplowitz, M. D., Hadlock, T. D., & Levine, R. (2004). A Comparison of web and mail survey response rates. *Public Opinion Quarterly*, 64-101.
- Keith, T. Z. (2006). *Multiple regression and beyond*. Boston, MA: Pearson Education Inc.
- Kirk, S. A., & Reid, W. J. (2002), *Science and social work a critical appraisal*. NetLibrary, Inc. New York: Columbia University Press.

- Koerin, B., Harrigan, M., & Reeves, J. (1990). Facilitating the transition from student to social worker: Challenges of the younger student. *Journal of Social Work Education, 26*, 199-208.
- Lacey, E. A. (1994). Research utilization in nursing practice – a pilot study. *Journal of Advanced Nursing, 19*, 987-995.
- LaPiere, R. T. (1934). Attitudes vs. Actions. *Social Forces, 13*, 230-237.
- Lichtenstein, S., & Fischhoff, B. (1977). Do those who know more also know more about how much they know? *Organizational Behavior and Human Performance, 20*, 169-183.
- Linehan, M., & Dexter-Mazza, E. T. (2008). Dialectical behavior therapy for borderline personality disorder. In (Ed.) D. H. Barlow. *Clinical handbook of psychological disorders: A step by step treatment manual* (4th ed., pp. 365-420). New York: Guilford Press.
- Mancini, A. D., Moser, L. I., Whitley, R., McHugo, G. J., Bond, G. R., Finnerty, M. T. et al. (2009). Assertive Community Treatment: Facilitators and barriers to Implementation in routine mental health settings. *Psychiatric Services, 60*, 189-195.
- Manfreda, K. L., Berzelak, N. & Vehovar, V. (2011). Nonresponse in web surveys. *International Encyclopedia of Statistical Science, 14*, 984-987. doi: 10.1007/978-3-642-04898-2\_43
- McCabe, O. L. (2006). Evidence-based practice in mental health: Accessing, appraising, and adopting research data. *The International Journal of Mental Health, Vol. 2*, 50-69.
- McCrystal, P., & Wilson, G. (2009). Research training and professional social work education: Developing research-minded practice. *Social Work Education, 28*, 856-872.

- Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach. *Quality and Safety in Health Care*, 14, 26-33.
- Mullen, E. J., & Bacon, W. B. (2004). Implementation of practice guidelines and evidence-based treatment: A survey of psychiatrists, psychologists, and social workers. In A. R. Roberts & K. Yeager (Eds.), *Evidence-based practice manual: Research and outcome measures in health and human services* (pp. 210-218). New York: Oxford University Press.
- National Association of Social Workers (2008). *Code of Ethics of the National Association of Social Workers*. (revised 2008). Retrieved November 11, 2010, from <http://www.naswdc.org/pubs/code/code.asp>
- National Association of Social Workers (2010), *Evidence-Based Practice*, retrieved April 14, 2010, from <http://www.socialworkers.org/research/naswResearch/0108EvidenceBased/default.asp>
- National Institutes of Health [NIH]. (2011). Dissemination and implementation research in health (R01 program announcement). Retrieved from <http://grants.nih.gov/grants/guide/pa-files/PAR-06-039.html>.
- Nelson, T. D., Steele, R. G., & Mize, J. A. (2006). Practitioner attitudes toward Evidence-based practice. *Administration and Policy in Mental Health and Mental Health Services Research*, 33, 398-409.
- Nelson, T. D. & Steele, R.G. (2007). Predictors of practitioner self-reported use of evidence-based practice: Practitioner training, clinical setting, and attitudes toward research.

- Administration Policy in Mental Health & Mental Health Services Research*, 34, 3119-330.
- Norusis, M. J. (2008). *SPSS 16.0 Guide to data analysis*. Upper Saddle River, NJ: Prentice Hall
- Oxman A, Flottorp S. (2001). An overview of strategies to promote implementation of evidence-based health care. In: Silagy C, Haines A, eds. *Evidence-based practice in primary care*, (2nd ed.) London: BMJ books.
- Pagoto, S.L., Spring, B., Coups, E. J., Mulvaney, S., Coutu, M., & Ozakinci, G. (2007). Barriers and facilitators of Evidence-based practice perceived by behavioral science health professionals. *Journal of Clinical Psychology*, 63, 695-705.
- Parahoo, K. (2000). Barriers to, and facilitators of, research utilization among nurses in Northern Ireland. *Journal of Advanced Nursing*, 31 (1), 89-98.
- Park, C. W., Gardner, M. P., & Thukral, V. K. (1988). Self-perceived knowledge: Some effects on information processing for a choice task. *American Journal of Psychology*, 101, 401-424.
- Peterson, D. R. (1991). Connection and disconnection of research and practice in the education of professional psychologists, *American Psychologist*, 46, 422-429.
- Ploeg, J., Davies, B., Edwards, N., Gifford, W., & Miller, P. E. (2007). Factors influencing best practice guideline implementation: Lessons learned from administrators, nursing staff and project leaders. *Worldviews on Evidence-Based Nursing*, 4, 210-219.
- Pravikoff, D. S., Tanner, A. B. & Pierce, S. T. (2005). Readiness of U.S. Nurses for Evidence-Based Practice: Many don't understand or value research and have had little or no

- training to help them find evidence on which to base their practice. *American Journal of Nursing*, 105(9), 40-51.
- Proctor, E. K., Knudsen, K. J., Fedoravicius, N., Hovmand, P., Rosen, A., & Perron, B. (2007). Implementation of Evidence-Based Practice in community behavioral health: Agency director perspectives. *Administration Policy Mental Health*, 34, 479-488.
- Radecki, C. M., & Jaccard, J. (1995). Perceptions of knowledge, actual knowledge, and information search behavior. *Journal of Experimental Social Psychology*, 31, 107-138.
- Rubin, A., & Parrish, D. (2007). View of Evidence-Based Practice among faculty in Master of Social Work Programs: A National survey. *Research on Social Work Practice*, 17, 110-122.
- Rubin, A. & Babbie, E. (2008). *Research methods for social work* (6th ed.). Belmont, CA: Thomson-Brooks/Cole.
- Ruble, N., Walters, C. & Yu-Chi, Y. (2001). Actual versus perceived knowledge of child development in a therapeutic context: A survey of therapists. *The American Journal of Family Therapy*, 29, 173-180.
- Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., & Titchen, A. (2004). Issues in Nursing: An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing*, 13, 913-924.
- Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996) Evidence based medicine: what it is and what it isn't: It's about integrating individual clinical expertise and the best external evidence. *British Medical Journal*, 312, 71-72.

- Salant, P. & Dillman, D. A. (1994). *How to conduct your own survey*. New York, NY: John Wiley & Sons Inc.
- Schaefer, D. R. & Dillman, D. A. (1998), Development of a standard e-mail methodology: Results of an experiment. *Public Opinion Quarterly*, 62, 378-397.
- Scherpenzeel, A. & Bethlehem, J. (2010). How representative are online panels? Problems of coverage and selection and possible solutions. In M. Das, P. Ester & L. Kaczmirek (Eds.) *Social research and the internet: Advances in applied methods and new research strategies* (pp.105-129). Boca Raton, FL: Taylor & Francis.
- Schonlau, M., Fricker, R.D., Jr., & Elliot, M. N. (2002). *Conducting research surveys via e-mail and the web*. Santa Monica, CA: RAND
- Selm, M. V. & Jankowski, N. W. (2006). Conducting online surveys. *Quality and Quantity*, 40, 435-456.
- Skulmoski, G. J., Harman, F. J., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education*, 2, 1-21.
- SPSS mrInterview (Version 5.5) [Computer Software]. (2008). North Castle, NY: International Business Machines.
- SPSS (Version 19). (2010). [Computer software]. North Castle, NY: International Business Machines.
- Thyer, B. (2008). The Quest for Evidence-Based Practice?: We Are All Positivists!, *Research on Social Work Practice*, 18,339-345.

- Tranmer, J. E., Lochhaus-Gerlach, J. & Lam, M. (2002). The effect of staff nurse participation in a clinical nursing research project on attitude towards, access to, support of and use of research in the acute care setting. *Canadian Journal of Nursing Leadership*, 15, 18-26.
- Trochim, W. (1989). An introduction to concept mapping for planning and evaluation. In W. Trochim (Ed.) *A Special Issue of Evaluation and Program Planning*, 12, 1-16.
- Tucker, S. J., Olson, M. E. & Frusti, D. K. (2009). Evidence-based practice self-efficacy scale: Preliminary reliability and validity. *Clinical Nurse Specialist*, 23, 207-215.
- US Department of Health and Human Services. (2006). *The road ahead: Research partnership to transform services. A report by the National Advisory Mental Health Council's Workgroup on Services and Clinical Epidemiology Research*. Bethesda, MD: National Institutes of Health, National Institute of Mental Health.
- Verbeke, W., Volgering, M., & Hessels, M. (1998). Exploring the conceptual expansion within the field of organizational behavior: Organizational climate and organizational culture. *Journal of Management Studies*, 35, 303-329.
- Wei Wei, C. (2003). Reducing error in mail surveys. *Practical Assessment, Research & Evaluation*, 8(18). Retrieved from <http://PAREonline.net/getvn.asp?v=8&n=18>
- Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues*, 25, 41-78.
- Wigfield, A., Eccles, J. S., Schiefele, U., Roeser, R. W. and Davis-Kean, P. (2007). Development of Achievement Motivation. *Handbook of Child Psychology*. [Published online].  
DOI: 10.1002/9780470147658.chpsy0315

- Wilson, G. & Kelly, B. (2010). *Enhancing social work students' learning experience and readiness to undertake practice learning*. Retrieved from University of Southampton School for Social Sciences, Higher Education Academy Subject Centre for Social Policy and Social Work (SWAP) website:  
[http://www.swap.ac.uk/docs/projects/practice\\_learning130710.pdf](http://www.swap.ac.uk/docs/projects/practice_learning130710.pdf).
- Woltmann, E.M. (2008). The role of staff turnover in the implementation of Evidence-Based Practices in mental health care. *Psychiatric Services, 59*, 732-737.
- Woody, S. R., Weisz, J. R., & McLean, C. (2005). Empirically supported treatments: 10 years later. *The Clinical Psychologist, 58*, 5-11.
- Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages and web survey services. *Journal of Computer-Mediated Communication, 10*(3), article 11. Retrieved from <http://jcmc.indiana.edu/vol10/issue3/wright.html>
- Yana, R., & Jo, R. M. (2004). Getting guidelines into practice: a literature review. *Nursing Stand, 18*, 33-40.
- Yoon, S. L. & Horne, C. H. (2004). Accruing the sample in survey research. *Southern Online Journal of Nursing, 5*. Retrieved from [http://www.snrs.org/publications/SOJNR\\_articles/iss02vol05.htm](http://www.snrs.org/publications/SOJNR_articles/iss02vol05.htm)

## APPENDIX

Table 1

*Participant's Demographic Profile and comparable CSWE 2010 data for full-time students*

Characteristic	Classification	Participants %	CSWE %
Sex ( <i>N</i> = 212)	Male	14.2	13.6
	Female	85.8	86.4
Race ( <i>N</i> =212)	White/Caucasian	85.7	58.1
	Other	14.3	41.9
Age ( <i>N</i> =210)	25 years and under	37.4	39.4
	26 years and over	62.6	60.9
Full time students	Yes	79.2	62.0
	No	20.8	38.0
Advanced Standing ( <i>N</i> =212)	Yes	25.5	
	No	74.5	
Distance MSW Program	Yes	3.8	
	No	96.2	
Internship/Field Placement ( <i>N</i> = 212)	Have not been on Internship	8.0	
	First internship	6.6	
	Completed 1 full semester	15.1	
	Completed 2 full semesters	25.5	
	Completed 3 full semesters	5.2	
	Met all internship requirements	39.6	
Undergraduate Major ( <i>N</i> = 212)	Social work	23.1	
	Psychology	26.4	
	Sociology	12.3	
	Other	38.2	
Paid Social Work Experience ( <i>N</i> =212)	No work experience	51.9	
	1 - 5 years experience	28.3	
	6 - 10 years experience	9.0	
	11 years experience and over	11.7	
Field/Pop of interest after graduation ( <i>N</i> =212)	Aging/Gereontological social work	8.0	
	Child Welfare	11.8	
	Health	9.9	9.3
	Mental /Community mental health	21.2	13.4
	School social work	6.6	
	Undecided	10.4	
	Other	32.1	

*Note:* Data missing in CSWE column was either unavailable or excluded due to incompatible classification.

Table 2

*Reliability Statistics*

Variable	Cronbach's Alpha	N of Items
EBP Knowledge	.83	7
Attitude toward EBP	.81	10
EBP Self-efficacy	.95	17
Intention to implement EBP	.86	8

Table 3

*EBP Knowledge Item Statistics*

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
1	.59	.81
2	.48	.83
3	.50	.83
4	.61	.81
5	.65	.80
6	.60	.81
7	.69	.79

Table 4

*Attitude toward EBP Item statistics*

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
1	.48	.80
2	.50	.80
3	.65	.79
4	.44	.81
5	.27	.82
6	.46	.80
7	.41	.81
8	.58	.79
9	.69	.78
10	.58	.79

Table 5

*EBP Self-efficacy Item statistics*

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
1	.40	.95
2	.55	.94
3	.68	.94
4	.67	.94
5	.67	.94
6	.76	.94
7	.66	.94
8	.80	.94
9	.81	.94
10	.73	.94
11	.75	.94
12	.78	.94
13	.67	.94
14	.66	.94
15	.72	.94
16	.66	.94
17	.74	.94

Table 6

*Intention to implement EBP Item statistics*

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
1	.62	.85
2	.47	.86
3	.70	.84
4	.52	.86
5	.76	.83
6	.70	.84
7	.57	.85
8	.61	.84

Table 7

*Item and Scale Descriptive Statistics*

Scale	Item <i>M</i>	<i>SD</i>	Median	Range	Skew ( <i>SE</i> )	Kurtosis ( <i>SE</i> )
Intention	4.31	.79	4.25	2.13, 6.00	.12 (.17)	- .45 (.33)
Knowledge	5.03	.72	5.14	1.14, 6.00	-1.64 (.17)	6.35 (.33)
Attitude	4.43	.71	4.40	2.40, 5.90	- .16 (.17)	- .31 (.33)
Self-efficacy	74.94	15.99	78.97	20.59, 100.00	-1.01 (.17)	.95 (.33)

Table 8

*Pearson Correlations*

Variable	Intention	Knowledge	Attitude	Self-efficacy
Intention	1.00			
Knowledge	.41** [.29, .52]	1.00		
Attitude	.60** [.52, .69]	.38	1.00	
Self-efficacy	.34** [.22, .45]	.21	.36	1.00

\*\* Correlation is significant at the .01 level (2-tailed).

Table 9

*Multiple Regression analysis of Intention, Knowledge, Attitude, EBP Self-efficacy*

Independent Variables	B	95 % CI	SE (B)	Beta	p
Knowledge	.22	[.10, .35]	.06	.02	.001
Attitude	.53	[.40, .67]	.07	.48	.001
Self-Efficacy	.01	[.00, .01]	.00	.13	.024

Note:  $R^2 = .41$ ,  $CI [.31, .51]$ ,  $F (3, 208) = 49.03$ ,  $p < .05$ .

Table 10

*Multiple linear regression analysis demographic variables results*

Independent Variables	B	95 % CI	SE (B)	Beta	p
<u>Step 1</u>					
Age in years	.005	[-.004, .02]	.005	.07	.25
Years of paid social work experience	-.004	[-.02, .01]	.008	-.03	.65
Current internship/field placement status	-.023	[-.074, .03]	.03	-.05	.38
<u>Step 2</u>					
Knowledge	.217	[.09, .34]	.06	.20	.001
Attitude	.528	[.39, .66]	.07	.47	.001
Self-efficacy	.006	[.01, .01]	.003	.13	.032

*Note:*

First step.  $F(3, 207) = 1.42, p = .24, R^2 = .02, R^2 \text{ Change} = .02, CI (.41, .60)$ .

Second step.  $F(3, 204) = 49.03, p < .001, R^2 = .42, R^2 \text{ Change} = .40, CI (.31, .51)$ .

Table 11

*Results of the overall multiple regression analysis with all six variables*

Step	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> $\Delta$	<i>F</i> Change	<i>df</i>	<i>p</i>
1	.14	.02	.02	1.42	3, 207	.24
2	.65	.42	.40	46.84	3, 204	.00

*Note.* The results of the demographic variables (age in years, years of paid social work experience and current internship/field placement status/experience) were those obtained upon initial entry in the regression model (Step 1). Step 2 results reflect the three demographic variables and the main independent variables, knowledge, attitude and self-efficacy. Overall total model with all six variables,  $F(6, 204) = 24.60$ ,  $p < .001$ ,  $R^2 = .42$ , Adjusted  $R^2 = .40$ ,  $CI (.32, .52)$ .

Table 12

*Current study's scale item means compared with two previous studies, the Johnston et al. (2003) for the knowledge and attitude scale and the Tucker et al, (2009) for the self-efficacy scale.*

Scale	Study	Item <i>M</i>	<i>SD</i>
Knowledge	Current Study	5.03	.72
	Johnston et al. (2003)	4.42	.64
Attitude	Current Study	4.43	.71
	Johnston et al. (2003)	3.73	.56
Self-efficacy	Current Study	74.94	15.99
	Tucker et al. (2009)		
	Baseline ( <i>N</i> = 93)	69.84	18.56
	Time 2 ( <i>N</i> = 80)	78.56	16.60
	Time 3 ( <i>N</i> = 30)	88.33	10.69

*Note:* Baseline and Time 2 scores indicate average for cohort 1 and 2. Time 3 indicates scores for only Cohort 2 after EBP training.

## Appendix A

### *Social Work Practice Innovations Survey Consent statement: electronic version*

Dear fellow Social Work Student,

I am doctoral student at the University of Tennessee, Knoxville (UTK) College of Social Work. I invite you to complete this brief questionnaire about your experiences, views, and perceptions about evidence-based social work practice. Your responses will be part of my dissertation, which I hope will contribute to the development of new ways of teaching social work practice innovations to improve client outcomes.

I would greatly appreciate you taking about 10 minutes of your time to help a fellow student by completing this survey. Please e-mail: [mvimba@utk.edu](mailto:mvimba@utk.edu) if you have any questions. Additional contact details can be found at the end of this questionnaire.

Please be assured that:

- Participation is voluntary and you are free to withdraw at any point without penalty.
- Participating in this study presents no foreseen risks to you and your program.
- All responses are confidential and will only be accessed by the investigator, the advisor and a technical assistant using a secure password.
- All precautions will be taken to protect your confidentiality (anonymity may not be guaranteed due to the nature of the medium).
- Responses and results will be presented in such a way that they can never be traced back to individual participants.
- You only provide your name and contact details if you are willing to be contacted by the researcher with any follow-up questions.
- Completion of this survey will constitute your informed consent to participate.

Thank you for volunteering your help in this important process.

Sincerely,

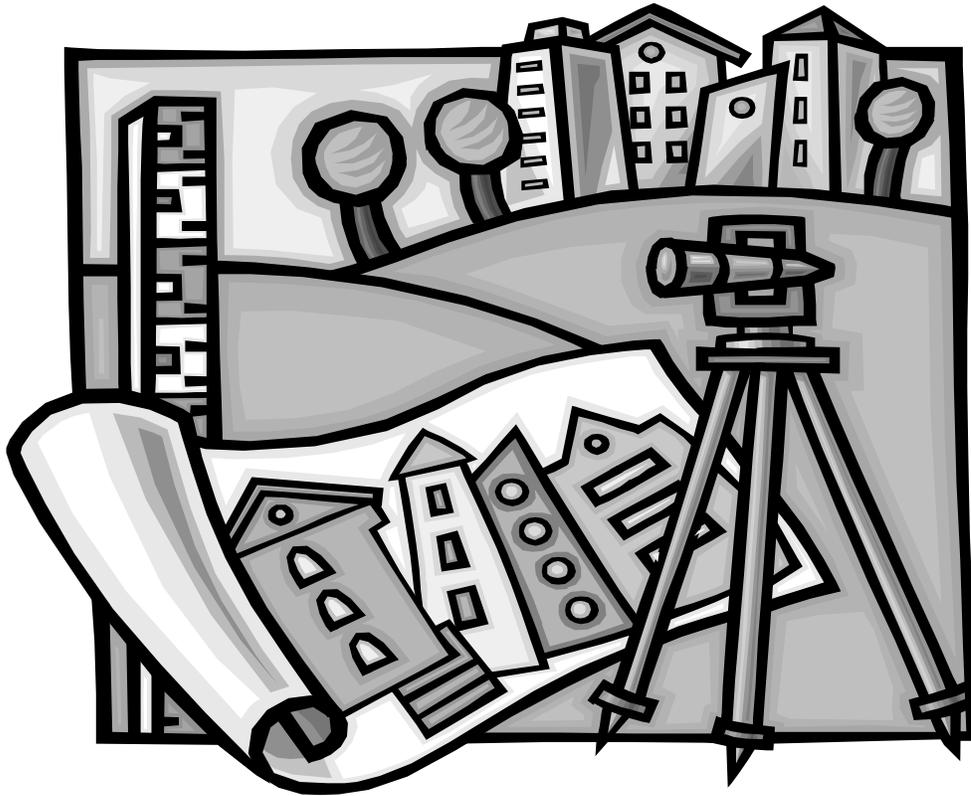
Mholi Vimba

- Yes, I wish to continue
- No, I wish to exit

Appendix B

*Survey: Paper version*

# Social Work Practice Innovations Survey



THE UNIVERSITY of TENNESSEE 

---

College of Social Work • Knoxville, TN 37996 •

**Informed Consent Statement**

*Dear fellow Social Work Student,*

*I am doctoral student at the University of Tennessee, Knoxville (UTK) College of Social Work. I invite you to complete this brief questionnaire about your experiences, views, and perceptions about evidence-based social work practice. Your responses will be part of my dissertation, which I hope will contribute to the development of new ways of teaching social work practice innovations to improve client outcomes.*

*I would greatly appreciate you taking about 10 minutes of your time to help a fellow student by completing this survey. Please e-mail: [mvimba@utk.edu](mailto:mvimba@utk.edu) if you have any questions. Additional contact details can be found at the end of this questionnaire.*

*Please be assured that:*

- *Participation is voluntary and you are free to withdraw at any point without penalty.*
- *Participating in this study presents no foreseen risks to you and your program.*
- *All responses are confidential and will only be accessed by the investigator, the advisor and a technical assistant using a secure password.*
- *All precautions will be taken to protect your confidentiality (anonymity may not be guaranteed due to the nature of the medium).*
- *Responses and results will be presented in such a way that they can never be traced back to individual participants.*
- *You only provide your name and contact details if you are willing to be contacted by the researcher with any follow-up questions.*
- *Completion of this survey will constitute your informed consent to participate.*

*Thank you for volunteering your help in this important process.*

*Sincerely,*

*Mholi Vimba*

**Q1. The first question asks you about what Evidence Based Practice means to you.**

**Please indicate how much you Agree/Disagree with the following statements.**

*(Choose the response that corresponds with your answer.)\**

1= Strongly Disagree

2= Moderately Disagree

3= Disagree

4= Agree

5= Moderately Agree

6= Strongly Agree

<b>How much do you AGREE with the following Statements</b>	<b>Circle your response</b>					
<b>a. I have a clear understanding of what evidence-based practice is.</b>	1	2	3	4	5	6
<b>b. Practicing evidence-based social work increases the certainty that a proposed intervention/treatment is effective.</b>	1	2	3	4	5	6
<b>c. Research using clinical trials is generally more reliable than research using observational methods.</b>	1	2	3	4	5	6
<b>d. The evidence-based social work process requires the appropriate identification and formulation of clinical questions.</b>	1	2	3	4	5	6
<b>e. Effective searching skills and easy access to bibliographic databases and evidence sources are essential to practicing evidence-based social work.</b>	1	2	3	4	5	6
<b>f. Evidence-based social work requires the use of critical appraisal skills to ensure the quality of all the research papers retrieved.</b>	1	2	3	4	5	6
<b>g. Critically appraised evidence should be appropriately applied to the client using clinical judgment and experience.</b>	1	2	3	4	5	6

**Q2. The following statements relate to your perceptions, beliefs, feelings, values, expectations, and dispositions towards EBP. Indicate how much you Agree/Disagree with the following statements (*Please choose the number of your answer.*) \***

1= Strongly Disagree

2= Moderately Disagree

3= Disagree

4= Agree

5= Moderately Agree

6= Strongly Agree

How much do you <b>AGREE</b> with the following Statements	Circle your response					
a. Evidence-based social work is a “cook-book” approach to social work.	1	2	3	4	5	6
b. Evidence-based social work disregards clinical experience.	1	2	3	4	5	6
c. There is no reason for me personally to adopt EBP because it is just a “fad” (or “fashion”) that will pass with time.	1	2	3	4	5	6
d. EBP is the future of social work and will become the standard of care.	1	2	3	4	5	6
e. It is easy to find evidence in order to practice evidence-based social work.	1	2	3	4	5	6
f. Evidence-based social work takes too much time for a busy MSW student.	1	2	3	4	5	6
g. If EBP is valid, then anyone can see clients and do what social workers do.	1	2	3	4	5	6
h. EBP social work ignores the “art” of social work.	1	2	3	4	5	6
i. Social workers, in general, should not practice EBP because social work is about families and clients, not statistics.	1	2	3	4	5	6

j. Previous work experience is more important than research findings in choosing the best treatment available to a client.	1	2	3	4	5	6
--	---	---	---	---	---	---

**Q3. The following items describe activities that support EBP social work. Please rate on a scale of 0% - 100% the confidence level of ability to perform the 17 listed items.**

0% = Not At All Confident *and* 100% = Completely Confident. \*\*

*(Please note Q3, items j-q continue on the next page.)*

<i>Activity to Support EBP social work</i>	<i>% Level of Confidence</i>
<b>a. Routinely ask questions about my practice</b>	%
<b>b. Locate resources in my department and institution to facilitate my understanding of research literature relevant to my social work practice.</b>	%
<b>c. Locate resources in my department and institution necessary to institute EBP change.</b>	%
<b>d. Locate and review published practice guidelines that support social work interventions important to my practice.</b>	%
<b>e. Locate and review published research studies that have relevance to social work interventions important to my practice.</b>	%
<b>f. Organize the necessary support and procedures to make a social work practice change based on evidence (research, clinical practice guideline, clinical expertise, patient goals/preferences).</b>	%
<b>g. Routinely identify client outcomes to target social work interventions.</b>	%
<b>h. Integrate the various sources of evidence and apply to my specialty population and practice.</b>	%
<b>i. Activate the processes to implement EBP change.</b>	%

**Q3.Continued.** Please rate items on a scale 0% = NOT AT ALL CONFIDENT *and*  
 100% = COMPLETELY CONFIDENT. \*\*

Activity to Support EBP social work	% Level of Confidence
<b>j. Modify social work interventions recommended for my client population based on characteristics of the specific unit in which I work.</b>	%
<b>k. Routinely evaluate the research literature and other sources of evidence related to social work interventions for my specialty population and practice</b>	%
<b>l. Routinely implement social work interventions that are supported by evidence (research and other sources such as practice guidelines) for my client population and practice.</b>	%
<b>m. Modify social work interventions I routinely implement based on what I learn about my client's preferences.</b>	%
<b>n. Routinely modify social work interventions based on outcomes and goals.</b>	%
<b>o. Routinely evaluate the effectiveness of social work interventions using measurable outcomes</b>	%
<b>p. Obtain proper training and education to be able to effectively implement an evidence-based social work intervention or practice.</b>	%
<b>q. Implement EBP social work intervention individualized to my client/family situation without losing the fidelity of the intervention (i.e. delivering as it was intended to be delivered).</b>	%

**Q4. Statements in this question relate to your future plans regarding using EBP social work principles in your work setting after you graduate. (Please indicate how much you Agree/Disagree by choosing the number that corresponds with your answer.)**

- 1= Strongly Disagree,
- 2= Moderately Disagree
- 3= Disagree
- 4= Agree
- 5= Moderately Agree
- 6= Strongly Agree

How much do you AGREE with the following Statements	Circle your response
a. <b>Implementing EBP in my future work settings is the only credible way to affirm my commitment to social work values and ethics.</b>	1 2 3 4 5 6
b. <b>Whenever possible I will only use EBP interventions in my work after graduation because it is the ethical thing to do.</b>	1 2 3 4 5 6
c. <b>I have definitely decided to implement EBP after graduation.</b>	1 2 3 4 5 6
d. <b>It is my duty to keep abreast of new developments and new evidence-based interventions after graduation.</b>	1 2 3 4 5 6
e. <b>I will always use EBP principles to keep up with new developments in social work.</b>	1 2 3 4 5 6
f. <b>EBP will always be an important and useful practice framework in my future practice as a social worker.</b>	1 2 3 4 5 6
g. <b>I do not know of anything/intervention that I want to do that might interfere/conflict with my intention to implement EBP after I graduate.</b>	1 2 3 4 5 6
h. <b>After graduating I will always appreciate the advantages of evidence-based social work practice relative to other frameworks.</b>	1 2 3 4 5 6

**Q5. Please tell us something about yourself. Be assured your answers will be kept CONFIDENTIAL and will ONLY be used for group comparisons.**

a. **What is your Sex?** (*Please choose one*)      Male/Female

b. **What is your Age** in years? \_\_\_\_\_

c. **What is your Race?** (*Please choose your selection*)

1.      White/Caucasian
2.      Black/African-American
3.      American Indian or Alaska Native
4.      Asian Indian
5.      Chinese
6.      Filipino
7.      Japanese
8.      Korean
9.      Vietnamese
10.     Native Hawaiian
11.     Guamanian or Chamorro
12.     Samoan
13.     Other Asian
14.     Other Pacific Islander

d. **Are you currently classified as a FULL TIME student?** (*please choose one*)

**Yes/No**

e. **Are you currently classified as an ADVANCED STANDING student?**

*(Choose one) Yes/No*

f. **Are you currently enrolled in a *Distance MSW* program? *(Choose one)***

**Yes/No**

g. **What best describes your current status with regards to social work internship (*field instruction/placement*)?**

1. Have not been on internship
2. On my first internship
3. Completed one full semester of internship
4. Completed two full semester if internship
5. Completed three full semesters of internship
6. Have met all my internship requirements

h. **How many years of paid Social Work experience do you have? \_\_\_\_\_**

**Q6. Which of the following describes your undergraduate studies?**

1. Social Work
2. Psychology
3. Sociology
4. Marriage and Family Counseling
5. Education Counseling
6. Other (*Please Specify*) \_\_\_\_\_

**Q7. How many graduate social work COURSES you have taken would you characterize as distinctly specializing in EBP or incorporating EBP principles. (Specify number)**

\_\_\_\_\_

**Q8. In your view, how much emphasis does the MSW curriculum in your school place on EBP:**

1. None
2. Very Little Emphasis
3. Moderate Emphasis
4. Heavy Emphasis

**Q9. In your view, how much emphasis does the MSW *Field Instruction* in your school place on EBP?**

1. None
2. Very Little Emphasis
3. Moderate Emphasis
4. Heavy Emphasis

**Q10. Please tell us about your professional future plans by selecting the field/population you intend to work with after graduation. (You may choose up to three fields).**

1. Administration
2. Aging/Gereontological Social Work

3. Alcohol, Drug or Substance Abuse
4. Child Welfare
5. Community Planning
6. Corrections/Criminal Justice
7. Developmental Disabilities
8. Domestic Violence or Crisis Intervention
9. Family Services
10. Group Services
11. Health
12. Housing Services
13. International
14. Mental Health or Community Mental Health
15. Program Evaluation
16. Public Assistance/Public Welfare (*Not Child welfare*)
17. Occupational
18. Rehabilitation
19. School Social Work
20. Social Policy
21. Undecided
22. Other (*Please specify*) \_\_\_\_\_

**Q11. Which school of social work do you attend currently?** \_\_\_\_\_

**Q12.** If you would like to be contacted by the researcher please provide your name and telephone number in the space provided. *Please note this information will remain confidential.*

\* Used with permission: (Johnston, Leung, Fielding, Tin & Ho, 2003)

\*\* Used with permission: (Tucker, Olson & Frusti, 2009)

*Thank you very much for taking the time to complete this survey. Your responses will help us better understand what MSW students think about their professional training and evidence-based practice. We realize that you may have other comments regarding your professional training and EBP that may have been omitted in this survey. We invite you to write any comments/thoughts you have in the box below.*

*Please return your completed survey to the instructor or facilitator. Should you have any questions regarding the survey and how it would be used, please direct your questions and comments to: **Mholi Vimba***

**E-mail address:** [mvimba@utk.edu](mailto:mvimba@utk.edu)

**Telephone:** (865) 765-4321

The University of Tennessee, College of Social Work

Office # B003

201 Henson Hall, Knoxville, TN 37996-3333

## **Appendix C**

*First mailing, invitation to participate and link to survey*

Dear Social Work Colleague,

I am doctoral student at the University of Tennessee, Knoxville (UTK) College of Social Work. I invite you to forward this brief questionnaire on Evidence-based social work practice to your current Master of Social Work (MSW) students. This questionnaire will capture the MSW students' experiences, views, and perceptions regarding evidence-based social work practice.

The survey results will be part of my dissertation, which I hope will contribute to the development of new ways of teaching social work practice innovations and subsequently improve client outcomes. This study has been approved by the University of Tennessee's Institutional Review Board (IRB).

I would greatly appreciate you taking a few moments of your time to help a social work student by forwarding to your MSW students, this link to the questionnaire:

<http://survey.utk.edu/mrIWeb/mrIWeb.dll?I.Project=SOCIALWORKPRACTI>

Participation is voluntary and the survey has a full informed consent statement that students have to read and agree to before they are allowed to participate. Please e-mail: [mvimba@utk.edu](mailto:mvimba@utk.edu) if you have any questions. You may also direct any additional questions to my advisor, Dr. John Orme: [jorme@utk.edu](mailto:jorme@utk.edu).

Thank you very much for your assistance.

Mholi Vimba, LMSW.

## **Appendix D**

*Reminder with link to survey*

### Survey Reminder

Last week you received an e-mail inviting you to forward a questionnaire on evidence-based social work practice to your currently registered Master of Social Work Students (MSW). If you have already forwarded the questionnaire to your students, please accept my sincere thanks. If not please, forward this survey link to your MSW students today:

<http://survey.utk.edu/mrIWeb/mrIWeb.dll?I.Project=SOCIALWORKPRACTI>

I am particularly thankful for your help in this matter because I believe that the survey results will not only help me complete my dissertation but will help in the development of better ways to teach evidence-based practice social work.

Please e-mail: [mvimba@utk.edu](mailto:mvimba@utk.edu) if you have any questions.

Sincerely,

Mholi Vimba

## VITA

Mholi Vimba, a married father of two girls, was born in Zimbabwe. He left his native home in 1996 to pursue college studies in the United States. He graduated from Henderson State University in Arkansas with a degree in Mass Media. He graduated from the University of Arkansas, Little Rock with a Master of Social Work (MSW) degree in 2007. Mholi, a licensed master social worker (LMSW), was a primary therapist at a behavioral residential treatment facility in Little Rock for a year before enrolling in a doctoral program in social work at the University of Tennessee, Knoxville in the fall of 2008.