The Impact of Cognitive Factors on Evidence-Based Practice: An Exploration in Occupational Therapy Practitioners

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ABSTRACT

Evidence-based practice (EBP) is a crucial contributor to patient safety and quality outcomes, but it is inconsistently applied by occupational therapy practitioners (OTPs). Much work has identified external factors that impact OTPs' EBP behavior, such as institutional support or lack thereof. However, despite some theoretical and practical data that suggest a link between internal factors such as cognition and EBP, very little research has been done into the nature of these relationships. The aim of this study is to elucidate the relationship between cognitive factors and OTPs' EBP behaviors.

This study used a cross-sectional survey to measure Floridian OTPs' reports of EBP behaviors; self-reflective practice (SRP); attitudes, subjective norms, and perceived behavioral control over EBP; and practice demographics. A total of 288 OTPs were included in the final regression analysis to determine predictors of EBP.

There was one significant positive predictor of EBP: perceived behavioral control (p = .004). Significant negative predictors of EBP included SRP (p = .001), possession of a bachelor's degree (p < .001) or master's degree (p = .002), working in long-term care (p = .01), and 1-5 years of experience (p = .04). Several interaction phrases were included in the model and notable significant interactions included the interaction between SRP and subjective norms (p < .001), and the interaction between subjective norms and perceived behavioral control (p = .001).

OTPs without doctoral degrees are less likely to implement EBP. Perceived behavioral control over EBP positively predicts EBP, but self-reflections that are unrelated to this are counterproductive to EBP. Future work in EBP implementation should focus more on perceived behavioral control and less on attitudes and subjective norms.

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This work is the culmination of years of formal and informal inquiry into the nature of implementation science in occupational therapy. I would like to thank some of the researchers who have mentored and inspired me: Dr. Leslie Rescorla, Dr. Roseann Schaaf, and Dr. Edelle Field-Fote.

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And finally, to my husband Ryne, thank you for showing up for our family every single day without fail, for being my rock, and for every act of service. You are my favorite.

Chapter I

Introduction

Overview of the Problem

Evidence-based practice (EBP) has been a key tenet of clinical practice since Sackett et al. (1996) first brought the concept into the mainstream healthcare practice conversation. These experts defined a complex behavior, emphasizing the importance of "integrating individual clinical expertise with the best available external clinical evidence from systematic research" (Sackett et al., 1996, p. 71). It is because of this complexity that, nearly 30 years later, researchers and clinicians alike struggle to engage in behaviors that promote EBP consistently. To clarify this construct, the five steps of EBP were described by Dawes et al. in 2005. This framework breaks the EBP process into five skills: developing a question, searching the literature, evaluating the literature, application, and assessment of efficacy. All five steps must be performed for a behavior to be considered EBP. Patients who do not receive EBP are more likely to have increased disability severity and poorer functional outcomes than those who do receive EBP (Bradley et al., 2013; Leland et al., 2019). Therefore, it is imperative that clinicians utilize EBP.

While the term EBP is used to describe clinicians' behavior, knowledge translation (KT) describes the efforts of researchers, clinicians, managers, policy-makers, and those receiving care to ensure that the latest research is used in practice (Graham et al., 2006). This term refers to the activities of a wider range of actors in the clinical space but maintains a focus on providing care based on the best available evidence (Salbach, 2010). In contrast to EBP, which focuses on the

clinician-patient relationship, clinicians engaged in KT advocate for best practices to healthcare administrators and policy-makers (Chan et al., 2023). They also communicate the barriers and supports inherent in translating research into practice to researchers, further aiding research utilization (Chan et al., 2023). Though there is some ambiguity in how the terms EBP and KT are applied (Salbach, 2010), this work will use EBP to describe clinicians' behaviors when applying the best evidence to practice within the clinician-patient dyad. KT will be used to describe clinicians' behaviors when moving outside of the clinician-patient dyad, such as advocating for best practices to healthcare managers and policy-makers. This work focuses primarily on EBP.

Occupational Therapy Practitioners and Their Role in Evidence-Based Practice

One group of health professionals who play a critical role in KT and EBP is occupational therapy practitioners (OTPs). Occupational therapy (OT) is a discipline of healthcare that focuses on restoring or promoting engagement in valued occupations, roles, and routines (American Occupational Therapy Association [AOTA], 2020). OT emphasizes the importance of taking a holistic view of a client and intervening in personal, community, and environmental factors to increase the client's ability to complete the activities that they need and want to do (AOTA, 2020).

OTPs are occupational therapists and occupational therapy assistants. These professionals have post-secondary and, in many cases, post-baccalaureate degrees that equip them to promote independence in individuals who have experienced an illness or injury (Accreditation Council for Occupational Therapy Education [ACOTE], 2023). OTPs receive training in anatomy, physiology, biomechanics, activity analysis, and the principles of patient-centered care (ACOTE, 2023). Recently, in response to the shift to a consumer-driven healthcare model, an increasing number of entry-level professionals are seeking doctorate degrees (Moyers, 2023). Professionals

believe this training better equips them to address healthcare consumers' needs, including an increased focus on EBP (Moyers, 2023). Although the doctorate-level curriculum emphasizes evaluating research (ACOTE, 2023), it is unclear if this shift has resulted in any change in actual EBP use (Engels et al., 2020; Klaic et al., 2018; Y. Wang et al., 2019). Furthermore, research into practicing OTPs' EBP behaviors consistently demonstrates that they do not integrate the best evidence into practice (Krueger et al., 2020; Lang et al., 2009; Lindström & Bernhardsson, 2018; Nott et al., 2020; Y. Wang et al., 2019).

Barriers and Facilitators of Evidence-Based Practice

Scholarly investigation has expanded the understanding of barriers to EBP. Surveys conducted with practitioners and other stakeholders have identified various factors that support and inhibit effective EBP (Cardin & Hudson, 2018; Engels et al., 2020; Y. Wang et al., 2019). Many researchers have identified institutional barriers such as lack of support from clinical managers, lack of time, and difficulty accessing journal articles as key contributors to OTPs' difficulty with EBP (Cardin & Hudson, 2018; Engels et al., 2020; Gifford et al., 2018; Provvidenza et al., 2020; Y. Wang et al., 2019; Wenke et al., 2022). The research on personal factors of OTPs is more mixed, with some researchers finding that OTPs with advanced degrees engage in more EBP (Klaic et al., 2018; Krueger et al., 2020). In contrast, others indicated that the degree level is unrelated to EBP (Y. Wang et al., 2019) or negatively associated with EBP (Engels et al., 2020). Though these findings provide some insight into the EBP problem, it is important to note that institutional factors do not impact behavioral change alone (Ajzen, 2020). Both implicit and explicit cognitive factors play a role in a professional's decision to engage in any behavior, including EBP.

Self-reflection has been identified as a potential explicit cognitive process in promoting

EBP use in healthcare practitioners. In some cases, OTPs report that increased opportunities to engage in self-reflection during learning result in a perceived improvement in EBP (Finlayson et al., 2005; Hinkley et al., 2022; Lowe et al., 2007). In another case, OTPs report no improvement in EBP after participation in a self-reflection intervention (Foucault et al., 2018). There is a discrepancy in the demonstrated effectiveness of self-reflective interventions in promoting EBP. This discrepancy also applies when researchers measure the general self-reflective behaviors and EBP of OTPs. In a national survey of OTPs, those who self-report higher levels of self-reflection also report higher levels of EBP use (Krueger et al., 2020). Other researchers, however, found no difference between high and low reflecting OTPs in EBP after attending a short course (Lowe et al., 2007). These discrepancies highlight a need to describe further the relationship between self-reflection and EBP use in OTPs. Some types of reflection may promote EBP, while others do not. Unearthing these active ingredients for successful EBP implementation would explain the inconsistency found in the literature.

In the self-reflection literature, researchers measure the impact that reflecting on clinical practice has on EBP (Krueger et al., 2020; Lowe et al., 2007). However, other researchers have identified cognitive factors that can indirectly impact EBP (Miles, 2010; Olsen, 2017; Upvall et al., 2019). For example, the clinicians' confidence in their general clinical skills may impact their decision to implement EBP (Upvall et al., 2019). Though not explicitly related to EBP, these cognitions may indirectly impact EBP use. Research in fields such as nursing, medicine, and speech and language therapy has indicated that cognitive factors such as cognitive dissonance, self-efficacy, and social desirability impact healthcare practitioners' EBP (Miles, 2010; Olsen, 2017; Upvall et al., 2019). These indirect, implicit cognitive factors are particularly impactful when encouraging practitioners to de-implement practices that are no longer considered

efficacious (Miles, 2010; Upvall et al., 2019). These factors, however, have not been studied in the context of OTPs, and more research is needed to understand the relationship between indirect and implicit cognitive factors and EBP in this population.

Self-reflection helps the implicit become explicit. Implicit factors include cognitive processes, societal expectations and norms, and personal experience (Ghaye & Lillyman, 2014). Through reflection, the practitioner breaks down the clinical reasoning process and achieves a more robust understanding of what factors, in addition to research evidence, inform clinical decision-making. One example of the utility of self-reflection to improve OTPs' EBP-related indirect cognitive processes is an intervention developed by Welch and Dawson (2006). The researchers measured the impact of a self-reflection intervention on OTPs' practice and found that it improved participants' confidence in searching for research evidence. This finding suggests that reflection may be related to EBP self-efficacy (Welch & Dawson, 2006). Others have found that reflective practice is related to increased EBP through the mechanism of practitioner self-identity (Gallagher et al., 2023; Rochette et al., 2024). In these examples, reflection strengthened participants' identities as occupational therapists (Gallagher et al., 2023) or added a new identity as a scholarly practitioner (Rochette et al., 2024), leading to increased EBP. In contrast to the cognitive processes that are required to engage in EBP, such as making a plan to gather the materials needed for the intervention or deciding on an appropriate time, cognitive processes that relate to the self and perceptions about one's abilities to conduct EBP are indirectly related to its execution. However, this work suggests that these indirect cognitive processes may link reflection about EBP and the performance of EBP (Gallagher et al., 2023; Rochette et al., 2024; Welch & Dawson, 2006).

The findings that there are links between these three factors suggest that they may be

interrelated. The framework proposed by Ghaye and Lillyman (2014) indicates that cognitive factors may mediate between self-reflection and EBP in OTPs. A stronger understanding of these relationships may clarify the conflicting results regarding the relationship between self-reflection and EBP in OTPs. Furthermore, research into these factors in OTPs will extend findings already discovered in other healthcare professions regarding the relationship between cognitive factors and EBP.

Statement of the Problem

This study will focus on determining the relationship between OTPs' implicit cognitive factors, EBP, and self-reflection to guide future EBP interventions. The present study will investigate self-reflection and EBP in OTPs. Research indicates that while EBP is important in promoting positive patient outcomes (Bradley et al., 2013; Leland et al., 2019), OTPs do not implement it (Krueger et al., 2020; Lang et al., 2009; Lindström & Bernhardsson, 2018; Nott et al., 2020; Y. Wang et al., 2019). Reflective interventions intended to improve EBP in OTPs have mixed results (Finlayson et al., 2005; Foucault et al., 2018; Hinkley et al., 2022; Lowe et al., 2007). Furthermore, some researchers have found a moderating effect of self-reflection on EBP use in OTPs (Krueger et al., 2020), while others have found no impact of reflexivity on EBP (Lowe et al., 2007). The present study will elucidate the relationship between self-reflective practice and EBP by adding behavior change constructs to the model, shedding light on how reflection impacts precursors to behavior.

Theoretical Framework

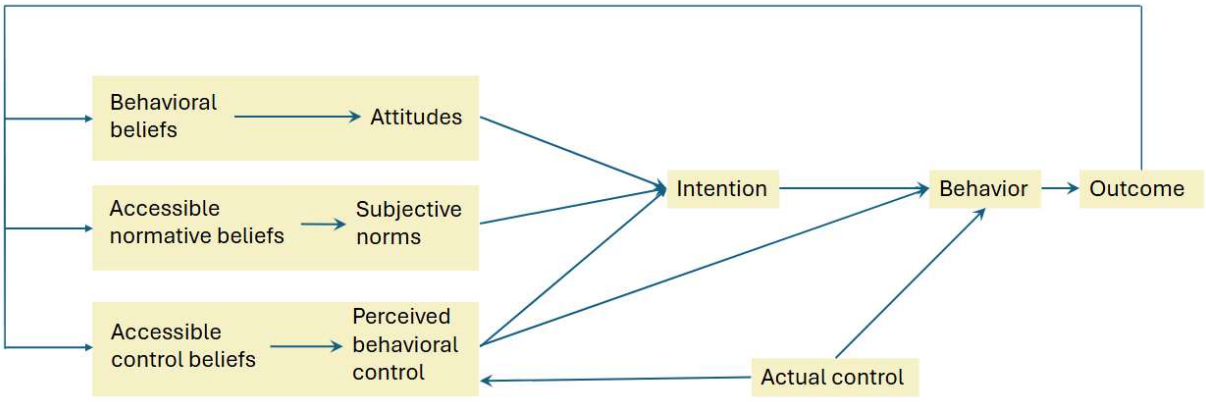
This work is informed by the Theory of Planned Behavior (Ajzen, 1991) and the five steps of EBP described in the Sicily Statement on Evidence-Based Practice (Dawes et al., 2005).

Theory of Planned Behavior

A theory that informs this work is the Theory of Planned Behavior (TPB), developed by Icek Ajzen in 1991. This theory identifies behavioral intention, actual control, and perceived behavioral control as the proximal antecedents to performing a behavior. It also identifies the factors contributing to the intention: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). The outcome of performing the behavior feeds back to impact the precursor factors (Ajzen, 2020). The relationship between the factors is illustrated in Figure 1. This theory has been widely used since its introduction in 1991 to explain a broad spectrum of human behavior (Ajzen, 2020). The TPB has been used in healthcare to design KT interventions that successfully improve practitioners' EBP behaviors (Casper, 2007; Doyle & Bennett, 2014).

Figure 1

Diagram of the TPB



Note. Adapted from *The theory of planned behavior: Frequently asked questions*, by Ajzen, 2020.

According to the TBP, attitudes are beliefs that engaging in the behavior will "lead to a certain outcome or provide a certain experience" (Ajzen, 2020, p. 315). In this study, attitude refers to OTPs' beliefs about the possible outcomes of EBP, such as patient benefits and

increased confidence as a practitioner. Furthermore, OTPs' attitudes are also informed by their perception of the likely experience of EBP, such as that it is engaging or takes a lot of time. Practitioners who do not see value in EBP will not see a need to change their practice when they self-reflect and see EBP missing.

In the TPB, subjective norms are beliefs about the frequency with which other people perform the behavior and one's belief about the value that others place on the behavior (Ajzen, 1991). OTPs' subjective norms are their perceptions of their community's beliefs, values, and EBP behaviors. Ajzen's (2020) construct of norms encompasses beliefs about how others in one's community will perceive one's decision to engage in a target behavior and beliefs about whether important others, such as experts and mentors, are engaging in the same behavior. According to Ajzen's (1991) theory, OTPs who believe their community values EBP are motivated to change their behavior if they reflect and see EBP missing in their practice.

In the model, behavioral control is one's perception of the presence or absence of facilitating and inhibiting factors related to the behavior (Ajzen, 1991). In addition to impacting behavioral intention, perceived behavioral control can sometimes directly impact the behavior. In this study, behavioral control is an OTP's belief in their ability to implement EBP. If OTPs believe they cannot change their practice, they will not, even if they think they should.

An individual's accessible beliefs about the behavior inform the three precursor factors of the behavior (Ajzen, 2020). These beliefs are consciously and unconsciously held and can be activated automatically or through effortful awareness (Ajzen & Fishbein, 2000).

Though the process of determining the factors that contribute to an individual's decision to engage in a behavior is effortful on the part of the scientist, demanding complex computation and conscious effort, the TPB model does not assume that the decision to engage in a behavior

requires complex computation and conscious effort (Ajzen & Fishbein, 2000). Social psychologists posit that much of human behavior is informed by beliefs and attitudes that are activated automatically in response to stimuli. This allows behavior to flow quickly and naturally, even when the actor is unwilling or unable to devote attentional resources to deciding how to behave (Kahneman, 2013). According to Ajzen and Fishbein (2000), the TPB can accommodate "spontaneous activation of attitudes, subjective norms, and perceptions of behavioral control, and assume that these automatically activated dispositions guide the formation of intentions and performance of behavior" (p. 20). Behavior that the TPB explains is not always the result of effortful deliberation. Sometimes, this behavior results from reliance on subconscious beliefs activated in response to a stimulus. In other situations, such as when an actor is motivated and able to devote attentional resources to deciding how to behave, the actor can effortfully retrieve specific beliefs to allow them to act in a desired manner (Ajzen & Fishbein, 2000).

Though the TPB can explain behavior based on subconscious beliefs, it is difficult to measure subconscious beliefs because they occur without the actor's awareness. Self-reflection can bring these beliefs into an actor's sphere of consciousness, increasing their insight into the rationale behind their behavior (Ghaye & Lillyman, 2014).

It is important to note that although the process illustrated in the model, whereby precursor factors inform a behavioral intention, which determines the execution of a behavior, proceeds in a logical flow, this model does not imply that human behavior is logical or rational. An individual's accessible beliefs about the behavior inform the three precursor factors to the behavioral intention. These beliefs may be erroneous or biased, leading to illogical and biased behaviors (Ajzen & Fishbein, 2000).

Five Steps of Evidence-Based Practice

A second theory that informs this work is the five steps of the EBP framework, described by Dawes et al. in 2005. This framework breaks the EBP process into five skills: developing a question, searching the literature, evaluating the literature, application, and assessment of efficacy. The first and final steps, developing a question and assessing the efficacy of an evidence-based intervention, are the most relevant to this work (Dawes et al., 2005). This framework has been used extensively in the OT EBP literature (Alshehri et al., 2019; Bannigan & Moores, 2009; Copley & Allen, 2009; Marr, 2016; Pitout, 2013). It has also been used successfully to inform KT interventions for OTPs (Crausaz et al., 2011; McQueen, 2008). This suggests that this framework reflects the way that OTPs engage in EBP.

To develop research questions, OTPs must be able to identify a gap between what they are doing and the best practice. An alternative way to develop research questions is to prospectively identify a need to know more before working with a particular patient or situation. This prospective and retrospective analysis is a form of self-reflection (Schön, 1983), which can kick off the EBP process. Retrospective reflection on EBP implementation will allow OTPs to engage better in EBP in the future. EBP is not a panacea; patient factors impact the efficacy of any intervention, including those backed by evidence (Sackett et al., 1996). The difference between practitioners who consistently and intermittently engage in EBP may be that those with a consistent practice reflect on whether and why an intervention was effective.

Purpose of the Study

The purpose of this quantitative study is to clarify the factors that contribute to OTPs' EBP. The knowledge gained from this study will fill a gap in the current understanding of EBP, which neglects internal cognitive factors in favor of measuring external institutional factors. This

understanding can be used to inform interventions to promote EBP by comprehensively addressing the barriers and taking advantage of any facilitators.

To better understand the rationale behind EBP implementation of OTPs, this study will utilize cross-sectional data about OTPs to model the relationship between self-reflection, EBP, and cognitive factors. The framework of the TPB will be used to identify cognitive factors relevant to clinical behavior.

Research Questions

The study will be guided by the following research questions:

Research Question One

What are OTPs' self-reported EBP behaviors? This research question will give background information about the sample. Gaining information about the overall EBP behavior of the OTPs in the sample will allow for comparison between this sample and previously studied samples of OTPs. The information gained from this research question will elucidate the EBP of OTPs in the sample before introducing the more complex analysis.

Research Sub Question 1.1. What are the EBP behaviors in subpopulations of OTPs with different degrees, years of experience, and in different practice areas? These factors are known to influence EBP in OTPs (Engels et al., 2020; Klaic et al., 2018; Thomas et al., 2023). This will situate this sample in the population of OTPs and allow the researcher to draw nuanced comparisons with the work of other scholars who have investigated EBP in OTPs.

Research Question Two

To what extent do self-reflective practice, attitudes, subjective norms, and perceived behavioral control predict OTPs' evidence-based practice? This research question will provide a nuanced understanding of the factors that impact OTPs' KT. By including factors that are likely

to impact EBP but have not been studied in this population before, this work will elucidate OTPs' professional behavior.

Research Question Three

To what extent does the interaction between self-reflective practice, attitudes, subjective norms, and perceived behavioral control predict OTPs' evidence-based practice? This question and those that follow will further parse out the factors that contribute to OTPs' EBP and the relationship between these factors.

Research Sub Question 3.1. To what extent does the interaction between self-reflective practice and attitudes predict OTPs' evidence-based practice?

Research Sub Question 3.2. To what extent does the interaction between self-reflective practice and subjective norms predict OTPs' evidence-based practice?

Research Sub Question 3.3. To what extent does the interaction between self-reflective practice and perceived behavioral control predict OTPs' evidence-based practice?

Research Sub Question 3.4. To what extent does the interaction between attitudes and subjective norms predict OTPs' evidence-based practice?

Research Sub Question 3.5. To what extent does the interaction between attitudes and perceived behavioral control predict OTPs' evidence-based practice?

Research Sub Question 3.6. To what extent does the interaction between subjective norms and perceived behavioral control predict OTPs' evidence-based practice?

Research Sub Question 3.7. To what extent does the interaction between self-reflective practice, attitudes, and subjective norms predict OTPs' evidence-based practice?

Research Sub Question 3.8. To what extent does the interaction between self-reflective practice, attitudes, and perceived behavioral control predict OTPs' evidence-based practice?

Research Sub Question 3.9. To what extent does the interaction between self-reflective practice, subjective norms, and perceived behavioral control predict OTPs' evidence-based practice?

Research Sub Question 3.10. To what extent does the interaction between attitudes, subjective norms, and perceived behavioral control predict OTPs' evidence-based practice?

Significance of the Study

The cost of healthcare is increasingly shifted to the consumer. From 2013 to 2023, the number of individuals enrolled in a high-deductible health plan increased by 19.4% to 49.7% of Americans (Davis, 2025). High-deductible health plans necessitate that consumers pay more for care than those enrolled in traditional health plans (Cohen & Briones, 2024). As a result, there has been an increased demand for high-quality, low-cost healthcare, often called value-based care (Teisberg et al., 2020). EBP can result in increased discharge rates to home (Leland et al., 2019) and decreased 30-day readmission rates (Bradley et al., 2013), decreasing the cost burden for the consumer. EBP goes hand-in-hand with value-based care because it helps providers choose the intervention that will most effectively address the patient's complaint and prevent a need for further medical services.

An understanding of the factors that lead to a medical practitioner's decision to engage in EBP will promote the needs of patients and improve outcomes. The knowledge gained from this study will fill a gap in the current understanding of EBP, which focuses on the impact of external institutional factors instead of internal implicit factors. This understanding can be used to inform interventions to promote EBP by comprehensively addressing the barriers to EBP.

This work will inform rehabilitation educators, both at the pre- and post-professional level, of the skills OTPs need to engage in EBP effectively. By identifying these crucial skills,

educators can begin to experiment with EBP interventions that target the root cause of poor EBP use. Furthermore, focusing on skills instead of institutional resources provides a viable option for change in the current healthcare climate.

Delimitations

This study will investigate OTPs' perceptions of their self-reflection, cognitive factors, and EBP behavior. The research will not include objective measurement of any of these factors. The instruments used to collect data will require self-report from OTPs. Furthermore, this research will investigate OTPs' cognitive factors as they relate specifically to EBP but not as they relate to other aspects of OT practice or professional identity. This research will also investigate the impact of self-reflection on OTPs' use of EBP but not on other aspects of their clinical reasoning and practice.

The sample in this study is limited to OTPs practicing in the state of Florida. The conclusions drawn from this study cannot be applied to OTPs practicing in other states or countries. The sample is also limited to those OTPs who answer a request for a survey. While the sample will be matched to the greater population of OTPs in Florida on demographic characteristics that research suggests may impact EBP, the sample will reflect the characteristics of those OTPs who choose to participate.

Definition of Terms

- *American Occupational Therapy Association (AOTA):* The professional organization for occupational therapy in the United States (AOTA, 2017).
- *Evidence-based practice (EBP):* The synthesis of the best available research evidence and clinical expertise when making decisions regarding patient care (Sackett et al., 1996).
- *Knowledge translation (KT):* Behaviors that support the application of the best available

research evidence in clinical practice, including clinician and patient education and advocacy to administrators and legislators (Chan et al., 2023).

- *Occupational therapy:* A professional field that focuses on understanding and addressing barriers to an individual's ability to engage in meaningful activities, roles, and routines (AOTA, 2020).
- *Occupational therapy practitioner (OTP):* A licensed individual with formal training in the process of occupational therapy (AOTA, 2020).
- *Self-reflective practice:* A process whereby professionals critically evaluate past behavior and plan future behavior (Ghaye & Lillyman, 2014).
- *Theory of Planned Behavior:* Introduced by Icek Ajzen (1991), this framework delineates the precursor factors that determine how an individual acts.
- *Value-based healthcare:* Care that is low-cost and high-quality (Teisberg et al., 2020).

Chapter II

Literature Review

The purpose of this research study is to investigate the relationship between self-reflection and evidence-based practice (EBP), informed by the Theory of Planned Behavior (TPB). This literature review will describe the current scientific evidence on the constructs and relationships of interest. The focus will be on the field of occupational therapy and health professions more broadly.

The review will start by describing the TPB and its evolution in response to critique. Next, the review will describe the relationship between the TPB and implicit cognitive factors. Then, the review will describe the literature applying the TPB to occupational therapy practice. The following section will describe the relationship between self-reflection and EBP in healthcare practice more broadly and then specifically in occupational therapy. The intent is to familiarize the reader with the state of the science.

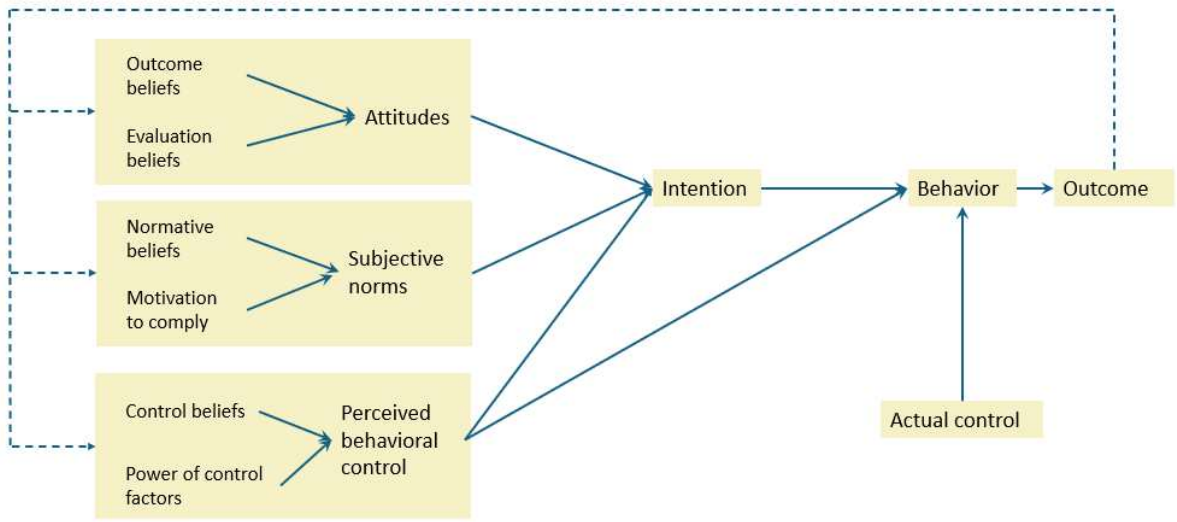
The Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was originally described in 1985 (Ajzen, 1985) and published in a peer-reviewed publication in 1991 (Ajzen, 1991). The theory describes the factors that lead to intentional human behavior. The immediate precursors to a target behavior are behavioral intention (BI), perceived behavioral control (PBC), and actual control. The strength of an intention is determined by an individual's attitudes toward the behavior, perception of subjective norms (SN), and PBC. In Ajzen's 1991 description of the theory, he goes on to describe that the outcome of a behavior can impact the three distal constructs:

attitudes, SN, and PBC (Ajzen, 1991). This relationship is illustrated in Figure 2. What follows is a description of the major constructs in TPB and a discussion of how these constructs and the relationships between them have been described differently as more data is collected and the theory adapts.

Figure 2

The Theory of Planned Behavior, as described by Ajzen in 1991



Note. Adapted from *The theory of planned behavior*, by Ajzen, 1991.

Target Behavior

In Ajzen's (1991) early descriptions of the TPB, the target behavior is the behavior being studied. To effectively study the behavior, it must be described in as much detail as possible, including the setting, time, and extenuating factors. One example of a target behavior is a hospital-based occupational therapy practitioner (OTP) utilizing an early mobilization protocol for a patient who has had a coronary artery bypass graft in the next two weeks. The performance of the behavior can be predicted based on an understanding of the OTP's BI to use the early mobilization protocol, the PBC they have of using the protocol, and their actual control over

using the protocol.

Actual Control

Actual control is the ability an individual has to perform a target behavior (Ajzen, 1991). This varies greatly depending on the target behavior. In the example with the OTP intending to try early mobilization of patients with a coronary artery bypass graft, if no patients with a coronary artery bypass graft are admitted to their unit in the 2-week period, it will be impossible for them to engage in the behavior. The admission process is something that the OTP has no control over. However, if a patient does admit, the OTP can request to be assigned to that patient so she can try the early mobilization technique. This is something that she has some degree of control over. Ajzen (1991) notes that in some cases, PBC can be used as a corollary for actual control.

Behavioral Intention

Ajzen (1991) describes BI as an individual's determination to perform a target behavior. After synthesizing the precursor cognitive factors of attitude, SN, and PBC, an individual will decide whether or not to do a particular behavior. Furthermore, the strength of this intention will vary depending on the features of the precursor factors. This can be illustrated using the example of the OTP who wants to try early mobilization for patients who have had a coronary artery bypass graft. In this case, an OTP may determine that utilizing early mobilization techniques for their patients with coronary artery bypass grafts is the best course of action. The strength of this intention may be strong because they have reasons to do so that align with their values and self-beliefs.

Perceived Behavioral Control

Ajzen (1991) describes PBC as the amount of agency an individual believes they have

over performing an action. This construct is broken down into two subconstructs: control beliefs and power over control beliefs. Control beliefs are an individual's perception about the presence or absence of factors that will facilitate or inhibit their performance of the target behavior. For example, an OTP may believe that the referring surgeon will write an order for early mobilization after a coronary artery bypass graft, and she may believe that she has the communication skills to effectively educate her patient on the protocol. Power over control beliefs refer to the degree of control an individual has over the facilitating and inhibiting factors. In the example used in the prior three sections, the OTP may perceive very little control over what order the surgeon writes, but a large amount of control over her communication skills. These factors combine to create the OTPs' assessment of her PBC, which impacts both her intention to engage in the behavior and her actual performance of the behavior. If she has an accurate assessment of her behavioral control, Ajzen (1991) notes that PBC may be used to estimate her actual control. Once she performs the behavior, the outcome can feed back to inform her control beliefs and her perception of her power over the control factors.

Attitudes

Attitudes are an individual's beliefs about the behavior (Ajzen, 1991). These include outcome beliefs, which refer to the likely result of the behavior, such as the outcome belief that a patient who receives early mobilization will get back to independent living sooner. Attitudes also include evaluation beliefs, which refer to the individual's perception of what it will be like to perform the behavior. In the example about early mobilization after a coronary artery bypass graft, this could refer to the OTP's perception that she will have to spend a lot of time reassuring the patient about the safety of moving so soon, which will require emotional effort on her part to allay the patient's fears. However, she may also believe that she will feel proud of herself as an

evidence-based practitioner. Once the OTP has performed the early mobilization protocol once, the actual outcome and experience of completing the target behavior will feed back to inform her outcome and evaluation beliefs, and thus her attitude regarding the protocol.

Subjective Norms

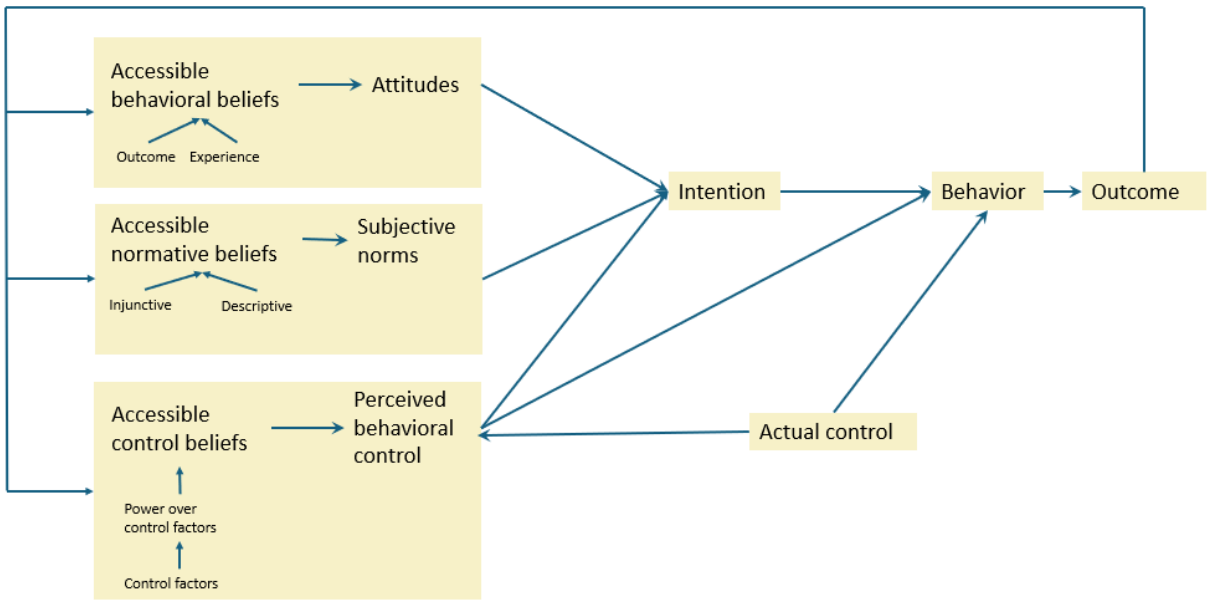
Ajzen (1991) describes SN as an individual's perceived social pressure to engage in the target behavior. SN are made up of normative beliefs, which describe an individual's beliefs about how others will perceive their engagement in the behavior. An OTP deciding to use an early mobilization protocol may hold the normative belief that their co-workers desire that they implement this protocol into their practice. SN are also made up of motivation to comply. In the example with the OTP, they may not hold their co-workers' clinical judgment in high esteem, negatively impacting their motivation to comply with social pressure. Once the OTP performs the behavior, their social circle's actual reaction will feed back and further inform their normative beliefs and motivation to comply.

Development of the TPB

After publication, scientists utilized the TPB to determine if it explained human behavior (Ajzen, 2011). This field testing led to several changes in the model, with the most recent version updated by Ajzen in 2020, illustrated in Figure 3.

Figure 3

The Theory of Planned Behavior, as described by Ajzen in 2020



Note. Adapted from *The theory of planned behavior: Frequently asked questions*, by Ajzen, 2020.

Updates to PBC

As the TPB was used by psychologists in diverse settings to explain a wide range of behaviors, several critiques emerged. Many argued that the two precursor factors to PBC, control beliefs and power over control factors, were not, in fact, related, and should be included in the model as two separate factors (reviewed in Conner & Armitage, 1998). In 2002, Ajzen responded to these critiques of the construct of PBC, clarifying the relationship of the precursor factors to this construct. Ajzen (2002) adds a third precursor factor, control factors, to the model. Control factors are the facilitating and inhibiting conditions that an individual interacts with when engaging in a behavior. Ajzen (2002) explains that an individual first becomes aware of and assesses the control factors, which inform their assessment of their power over the control factors, which then inform their control beliefs. In this treatise on PBC, he also acknowledges the work done by Albert Bandura in the field of self-efficacy and acknowledges the similarity of this construct to PBC.

Updates to SN

In 2010, Fishbein and Ajzen further elucidated SN, describing two distinct types of normative beliefs. Injunctive normative beliefs are the type that have been described since Ajzen (1991) first described the theory and denote the social pressure of an individual's immediate social circle. In the OTP example, this is the OTP's perception of how their coworkers and family will view their use of an early mobilization protocol. Fishbein and Ajzen (2010) add descriptive normative beliefs, which are beliefs about whether high-profile and well-respected others engage in the behavior. For example, if an OTP who had treated Peyton Manning described her use of the early mobilization protocol after a coronary artery bypass graft, this account would impact an OTP's SN regarding this protocol, even if she did not personally know Manning's OTP.

Modern Construction of the TPB Model

Ajzen (2011) acknowledged that not all beliefs are accessible to a psychologist's measurements. He updated the wording in the model in 2011 to reflect this, describing behavior, normative, and control beliefs as accessible. In this editorial, he further emphasized the rapidity with which most decisions are made. He argues that though these factors inform BI, a person is not always aware of the cognitive process of synthesizing this information to arrive at a BI.

Another critique of the model is that it does not account for the role past behavior plays in informing future behavior (Conner & Armitage, 1998). Researchers who included measures of past behavior in the model found that it improved the prediction of the target behavior (Abraham & Sheeran, 2003; Kor & Mullan, 2011). Ajzen (2011) responded to the evidence regarding the impact that past behavior has on future behavior. Though the feedback loop between the outcome and precursor factors has been part of the model since its inception, Ajzen (2011)

established the feedback loop as a central aspect of the model, informing hypotheses about the nature of human behavior. Nine years later, Ajzen (2020) synthesized the changes of the prior three decades of research, concisely describing the modern construction of the model.

The Theory of Planned Behavior and Implicit Cognitive Factors

A key point of debate among scholars of the TPB is how the theory can account for the impact of implicit cognitive processes on BI and performance of a behavior (Ajzen, 2011; Churchill & Jessop, 2011; Phipps et al., 2022). Unlike deliberative processing, where an individual is aware of the factors that lead to a BI, implicit cognitive processes are intuitive or impulsive drivers of behavior at a non-conscious level (Hagger, 2016; Kahneman, 2013). These drivers originate from associative links between stimuli and behavior (Strack & Deutsch, 2004). Ajzen (2011) states that "attitude, subjective norms, and perceptions of control as well as intentions…are assumed to guide behavior implicitly without cognitive effort and often below conscious awareness" (p. 1122). Though the theory allows for the impact of implicit cognitive factors, the mechanism by which these factors impact BI and behavior is not explicitly stated in the model. A key feature of the theory is that attitudes are based on accessible behavioral beliefs, SN are based on accessible normative beliefs, and PBC is based on accessible control beliefs (Ajzen, 2020). Therefore, implicit cognitive factors do not impact the model as precursor factors.

Researchers have developed methods to measure implicit cognitive factors (Greenwald et al., 1998) and employed those measures to further elucidate the role of implicit cognitive factors in the TPB (Phipps et al., 2024). Some models of behavior suggest that implicit cognitive factors contribute to a behavioral prediction model independently of the TPB factors (Phipps et al., 2021). Other research suggests that these implicit cognitive processes impact intention and behavior via attitudes, SN, and PBC (Lee et al., 2016). In this model, implicit factors are

activated prior to the precursor factors. These implicit factors are integrated using critical reflection, which makes these factors accessible and thus allows them to influence the precursor factors. There is still ambiguity regarding where in the TPB model to situate implicit cognitive factors. Furthermore, it has also been noted that different behaviors are governed by implicit cognitive processes to varying degrees (Andersen et al., 2018; Churchill & Jessop, 2011; Patouris et al., 2016), suggesting that not every behavior is similarly susceptible to implicit control. Despite the continuing debate regarding the specific role implicit factors play in impacting BI and behavior, Ajzen's (2011) assertion that implicit cognition impacts behavior is supported by work in behavioral control (Andersen et al., 2018; Churchill & Jessop, 2011; Lee et al., 2016; Phipps et al., 2021).

When planning behavior change interventions, it is possible and important to mitigate the impact of implicit cognitive factors. Research into implicit cognitive processes, particularly implicit biases, has found that engaging in self-reflection effectively prevents individuals from acting on their implicit biases (Shuck et al., 2024). This suggests that reflection may decrease the impact implicit cognitive factors have on behavior, allowing an individual to act in a planned manner. Further support for this assertion comes from a study on undergraduates' sedentary behavior (Phipps et al., 2022). In this study, the researchers found a moderating effect of self-monitoring such that participants with lower levels of self-monitoring were impacted by their implicit attitudes, but participants with high levels of self-monitoring did not show an effect of implicit attitudes on behavior (Phipps et al., 2022). This suggests that individuals' cognitive processes impact their behavior differently depending on their reflective skills. These results suggest that the cognitive concepts described in the TPB are linked to reflective practice such that the degree of an individual's reflection determines the extent to which her behavior can be

explained using attitudes, SN, and PBC.

Reflective Practice and the Theory of Planned Behavior

Reflective practice impacts awareness of the attitudes, SN, and PBC that impact BI and behavior. In a study investigating the factors that enabled teachers to integrate new teaching practices, the teachers identified reflective practice as the mechanism by which they changed their attitudes, SN, and PBC, which had the effect of allowing them to integrate best practices into the classroom (Vaino et al., 2013). In another study of healthcare providers, a reflective intervention aimed at promoting the use of integrative medicine effectively increased this behavior (Shamblen et al., 2018). A statistical model of the cognitive process that brought about this change revealed that the reflective intervention positively impacted the participants' PBC, which was related to the change in behavior (Shamblen et al., 2018). These results suggest that reflective practice can be a robust mechanism to adjust attitudes, SN, and PBC, resulting in engagement in a target behavior.

Some theorists believe that the best way to explain the link between reflection, behavior, attitudes, SN, and PBC is to view reflection as the feedback loop between behavior and the precursor factors. A central component of Ajzen's (2020) model is that a behavior's outcome impacts an individual's attitudes, SN, and PBC. In work investigating the link between reflection and behavior, theorists posit that self-reflection is the mechanism that links past and future behavior. This is illustrated in a study investigating weight loss. In the study, researchers had participants keep diaries about their weight loss journey (Chung et al., 2016). As the participants lost weight, they recorded the information in their diary, providing an opportunity to reflect. At 24 weeks, participants had not only lost weight but also maintained this change. Analysis of the factors that led to this achievement revealed that the reflective diary positively impacted

participants' PBC, resulting in changed behavior that resulted in weight loss. Because the diary was maintained during the performance of the target behaviors, this study suggests that reflection on the outcome of a behavior promotes feedback into the precursor factors that impact intention (Chung et al., 2016). Reflection can be conceptually included in the TPB model along the feedback line between the outcome of a behavior and the precursor factors.

The Theory of Planned Behavior and Occupational Therapy

Occupational therapy (OT) is a field that is based on a scientific understanding of the world (American Occupational Therapy Association [AOTA], 2020). Occupational therapy practitioners (OTPs) use the framework of the scientific method to develop client-centered interventions to enable individuals to live life to the fullest (AOTA, 2020). The current standard for entry into the field of OT is an associate's degree for occupational therapy assistants and a master's degree for occupational therapists (Accreditation Council for Occupational Therapy Education, 2023). OTPs practice in a range of settings, including medical, educational, and community environments (AOTA, 2020). These practitioners assess a client's deficits, including their body systems and structures, performance skills, and habits, to determine areas for intervention that mitigate or eliminate deficits and allow performance of valued life skills and roles (AOTA, 2020). Practitioners must integrate data from multiple sources: the latest research evidence, professional experience, and client information (Bannigan & Moores, 2009). Because the body of research evidence expands with every passing year (Liu et al., 2023), OTPs must identify new sources of knowledge, determine their relevance to practice, and change their behavior to reflect this new understanding (Dawes et al., 2005).

Effectively supporting OTPs in using best practices is challenging, with many OTPs reporting low usage of research evidence (Krueger et al., 2020; Y. Wang et al., 2019).

Knowledge translation (KT) interventions are used to bring research evidence into clinical practice with mixed effectiveness (Thomas & Law, 2013). A better understanding of the factors that help OTPs change their behavior can make KT interventions more consistently effective. Theory is a valuable tool for understanding the mechanism of behavior change (Chana et al., 2016; Colquhoun et al., 2010). One theoretical framework that applies to OT is the TPB (Ajzen, 1991).

Connection Between TPB and OT

The TPB has been used throughout the OT literature to describe the precursors to OTPs' practice intentions (Doyle & Bennett, 2014; Glegg et al., 2017; Soper et al., 2020). The literature describes the mechanism by which OTPs change their practice behaviors (Chana et al., 2016; Doyle & Bennett, 2014; Glegg et al., 2017). An understanding of the current factors that impact OTP behavior can help to guide interventions to encourage their KT.

The TPB has been used to describe current OTPs' practice intentions (Chana et al., 2016; Soper et al., 2020), the relationship between precursor factors and practice intentions (Glegg et al., 2013; Groth, 2011), the relationship between precursor factors and practice behaviors (Webster & Daisley, 2007), and the effects of a knowledge translation intervention (Doyle & Bennett, 2014; Glegg et al., 2017).

OT Practice and TPB. OTPs utilize diverse theoretical frameworks and have access to a broad range of scientific literature to support their professional reasoning, so deciding which intervention to execute is complex (Boyt Schell et al., 2013). Further complicating matters, best practice differs depending on the individual's performance skills and patterns, client factors, context, and target occupation (AOTA, 2020). Soper et al. (2020) investigated the factors impacting OTPs' choice of occupation to target when working with children with disabilities.

The researchers studied participants' attitudes, SN, and PBC around incorporating best practices, but not their intentions or actual behavior. Though most participants had positive responses to all survey items, the construct of attitudes was the most positively endorsed, followed by PBC and SN (Soper et al., 2020). Another group of researchers interviewed OTPs about their perceptions of addressing loneliness in geriatric clients. TPB was used as a theoretical framework to code the interview responses. Themes of attitudes and PBC emerged from responses but not SN (Chana et al., 2016). The work conducted by Soper et al. (2020) and Chana et al. (2016) suggests that OTPs identify aspects of the TPB model as important for their professional reasoning. However, this work does not describe the connection between these concepts and OTPs' intention to engage in a behavior.

Using a TPB Framework to Understand OTPs' Intentions Toward EBP. Some researchers have investigated the link between aspects of the TPB and OTPs' intention to engage in a behavior (Glegg et al., 2013; Groth, 2011). OTPs surveyed about their intentions to use research evidence to guide practice for individuals with carpal tunnel syndrome reported that attitudes and SN influenced their BI (Groth, 2011). However, PBC did not. Researchers found something similar when investigating OTPs' intention to use an evidence-based virtual reality intervention with patients with traumatic brain injury (Glegg et al., 2013). OTPs identified attitudes and SN as the main factors influencing their decision to integrate this novel treatment into their practice (Glegg et al., 2013). Across two different practice areas, OTPs identified attitudes and SN as the main factors from the TPB model impacting their intention to engage in an aspect of OT practice (Glegg et al., 2013; Groth, 2011).

KT Interventions' Impact on TPB Factors. Furthering the understanding of the link between precursor factors and BI, researchers investigated KT interventions' impact on these

factors (Doyle & Bennett, 2014; Glegg et al., 2017). One group of OTPs participated in a KT intervention designed to promote best practices in upper limb rehabilitation following a stroke (Doyle & Bennett, 2014). The intervention significantly improved participants' attitudes, SN, and PBC toward EBP. This was associated with an increase in BI on visual inspection, but the researchers did not quantify the relationship between the precursor factors and the BI statistically, making the nature of this relationship as yet unknown (Doyle & Bennett, 2014).

A second group of OTPs participated in a KT intervention targeted at increasing the use of virtual reality in neurorehabilitation (Glegg et al., 2017). The intervention significantly improved participants' attitudes and SN toward EBP. The researchers split the PBC construct into self-efficacy, which was increased by the intervention, and controllability, which was not (Glegg et al., 2017). This technique of splitting the construct of PBC into two constructs is recommended by Ajzen (2020). There was no significant impact on the OTPs' intention to use EBP (Glegg et al., 2017). These results suggest that the perceived controllability of the behavior strongly impacted the intention such that positive changes in other precursor factors did not result in increased intention (Glegg et al., 2017). Notably, in work done on OT students, researchers have also separated PBC into two constructs and found that each impacts BI differently (Figueiredo et al., 2017; Werner & Grayzman, 2011). This has not been replicated in OTPs, but taken together, these findings suggest that PBC may not be a monolithic concept in OTPs. Neither group of researchers who worked with OTPs investigated the effect of these factors on self-reported or actual behavior (Doyle & Bennett, 2014; Glegg et al., 2017).

In the TPB model, intentions are one of the three factors determining whether a behavior is carried out (Ajzen, 2020). Actual control over behavior determines an individual's ability to engage in a behavior. Ajzen (2020) also posits that PBC directly impacts performing the

behavior and indirectly impacts it through the effect of PBC on BI. Both groups of OTPs mentioned in this section did not identify PBC as strongly impacting their BI (Glegg et al., 2013; Groth, 2011). Because the model states that PBC directly impacts behavior, it is important to look at behavior to understand the role of PBC better (Ajzen, 2020).

Factors from the TPB model play a role in self-reported OTP behavior (Webster & Daisley, 2007). OTPs were surveyed on their intentions and self-reported behaviors of including children with brain injuries in rehabilitation decision-making. The OTPs reported that attitudes and PBC were related to their BIs but that SN and PBC were related to their self-reported behaviors (Webster & Daisley, 2007). These results suggest that different factors may be linked to intention and behavior, making it essential to study both constructs.

Summary. OTPs' intentions toward their practice were consistently impacted by their attitudes toward the practice (Doyle & Bennett, 2014; Glegg et al., 2013; Groth, 2011; Webster & Daisley, 2007), with one exception (Glegg et al., 2017). Many OTPs reported that their intention was also impacted by at least one aspect of their PBC (Doyle & Bennett, 2014; Glegg et al., 2017; Webster & Daisley, 2007) and social norms (Doyle & Bennett, 2014; Glegg et al., 2013; Groth, 2011). One group of OTPs reported on their actual behavior, identifying social norms and PBC as key factors (Webster & Daisley, 2007). The elements of the TPB are impactful in determining OTPs' BIs, particularly toward engaging in best practices.

Conclusions

Aspects of the TPB model impact OTP's decisions on which areas of occupation to target during a plan of care (Chana et al., 2016; Glegg et al., 2013), which interventions to use (Soper et al., 2020), and which information sources to use to answer clinical questions (Groth, 2011). There was no consensus on which precursors to BI were the most impactful on these decisions,

showing variation depending on the decision (Glegg et al., 2017; Soper et al., 2020). One group of researchers separated PBC into self-efficacy and controllability, demonstrating that KT interventions differentially impacted these factors (Glegg et al., 2017). OTPs are influenced by different precursor factors depending on the decision. The TPB can help explain the impact of KT interventions on clinical decision-making.

Self-Reflective Practice and Evidence-Based Practice in Occupational Therapy

Evidence-based practice (EBP) has been an important tenet of occupational therapy (OT) practice since Sackett et al. (2019) first brought the concept into the mainstream healthcare practice conversation. These experts' definition highlights the complexity of this behavior, emphasizing the importance of "integrating individual clinical expertise with the best available external clinical evidence from systematic research" (Sackett et al., 1996, p. 71). It is because of this complexity that, nearly 30 years later, researchers and clinicians alike struggle to engage in behaviors that promote EBP consistently. The behaviors are collectively called knowledge translation (Graham et al., 2006). Unfortunately, despite the attention and resources devoted to OTPs' knowledge translation skills, research into their EBP behaviors consistently demonstrates that they do not integrate the best evidence into practice (Krueger et al., 2020; Lang et al., 2009; Lindström & Bernhardsson, 2018; Nott et al., 2020; Y. Wang et al., 2019). Patients who do not receive EBP are more likely to have increased disability severity and poorer functional outcomes than those who do receive EBP (Bradley et al., 2013; Leland et al., 2019). Therefore, OTPs must increase their EBP.

However, EBP is just one problem-solving mode OTPs employ when working with clients (AOTA, 2020). In a Delphi study aimed at distinguishing the key concepts that OTP students need to grasp to be ready for entry-level practice, EBP and self-reflective practice (SRP)

were identified as two key concepts (Nicola-Richmond et al., 2016). Self-reflection helps the implicit become explicit. Implicit factors include cognitive processes, societal expectations and norms, and personal experience (Ghaye & Lillyman, 2014). Through reflection, the practitioner breaks down the clinical reasoning process and achieves a more robust understanding of what factors, such as clinical experience or research evidence, inform clinical decision-making. Self-reflective practices, such as reflection-on-action and reflection-in-action (Schön, 1983), critical incident analysis, and reflective dialogue, have been acknowledged as crucial to practitioner development (Ghaye & Lillyman, 2014). Large-scale analysis of EBP has revealed a close relationship with SRP, encouraging further investigation into the link between these constructs(Thomas & Law, 2013).

Theoretical Link between SRP and EBP

Theoretical models that link EBP to SRP have been proposed by OTPs (Jeffery et al., 2021; Thomas et al., 2023; Vachon et al., 2010), OT academics (Bannigan & Moores, 2009; Blair & Robertson, 2005; Greber, 2021; Knightbridge, 2019; Kucharczyk et al., 2019; Lal & Korner-Bitensky, 2013; R. H. Wang et al., 2023), and OT stakeholders (Kim et al., 2024; Menon et al., 2010; Thomas et al., 2024). The groups differ on their perspective of the nature of the relationship between SRP and EBP, some positing that SRP precedes EBP (Greber, 2021; Menon et al., 2010; Thomas et al., 2023), others that both processes occur simultaneously (Bannigan & Moores, 2009), and others assert that SRP and EBP are entirely different processes (Blair & Robertson, 2005).

Views of Practitioners. OTPs in different practice areas identify self-reflection as a precursor to EBP (Jeffery et al., 2021; Knightbridge, 2019; Thomas et al., 2023; Vachon et al., 2010). A survey conducted with OTPs across practice areas revealed that participants thought

SRP was a key step in transferring research into practice (Knightbridge, 2019). In semi-structured interviews with seasoned OTPs working in stroke rehabilitation, participants identified SRP as one of six factors that supported EBP (Thomas et al., 2023). These participants highlighted the importance of productively questioning clinical decision-making, stimulating an understanding of the underlying factors contributing to professional behavior (Thomas et al., 2023). In another study, OTPs discussed the key factors contributing to effective EBP development (Jeffery et al., 2021). Similar to the results found by Thomas et al. (2023), this group identified SRP as one of many factors that encouraged EBP (Jeffery et al., 2021). These researchers found that the OTPs made a distinction between superficial and deep reflection, opining that superficial reflection did not play a role in EBP (Jeffery et al., 2021). In a grounded theory study, OTPs working in work rehabilitation constructed a research utilization model rooted in critical reflection on practice (Vachon et al., 2010). The OTPs interviewed by Vachon et al. (2010) and surveyed by Knightbridge (2019) identified SRP as a more crucial aspect of EBP than did those studied by Thomas et al. (2023) and Jefferey et al. (2021), but all groups of OTPs agreed that SRP is an important precursor to successful EBP (Jeffery et al., 2021; Knightbridge, 2019; Thomas et al., 2023; Vachon et al., 2010).

Views of Stakeholders. OTPs also join stakeholder groups to provide insight into key concepts in the profession, such as SRP and EBP (Kim et al., 2024; Menon et al., 2010; Thomas et al., 2024). Kim et al. (2024) gathered OT researchers, practitioners, and policymakers to create a model of EBP that reflected all three groups' values and understanding of the concept. After two rounds of theory development, the group's model of EBP included SRP as one of the underlying processes that lead to EBP (Kim et al., 2024). This conclusion was supported by the views of a stakeholder group assembled by Thomas et al. (2024), which included OTPs and

academics. This group indicated a consensus that SRP can promote EBP and a need for more tools that facilitate SRP (Thomas et al., 2024). One such tool has been developed and validated by clinicians and OT academics (Menon et al., 2010). These researchers developed the PERFECT, which uses critical incident analysis to guide OTPs through the process of engaging in focused, productive reflection to increase their use of EBP. The clinicians who participated in the validation of this tool reported that they found it useful for stimulating changes in their practice (Menon et al., 2010). All three groups of stakeholders viewed reflective practice as a precursor to EBP, even developing a tool to stimulate SRP with the ultimate goal of modifying EBP.

Views of Academics. OT academics, such as educators and researchers, provide more insight into the link between SRP and EBP. An influential model of OT practice, the Model of Professional Thinking, integrates SRP and EBP as two key components of OT practice (Bannigan & Moores, 2009). These experts conceptualize SRP and EBP as processes that occur in tandem, with information gained from self-reflection informing the EBP process and vice versa. This view of SRP and EBP as concurrent, instead of sequential, processes is different from the views expressed by the groups that included OTPs, who reported that they viewed SRP as a precursor to EBP (Kim et al., 2024; Menon et al., 2010; Thomas et al., 2024). Blair and Robertson (2005) take a different approach to conceptualizing the relationship between SRP and EBP. These theorists posit that the two processes arise from different ontological assumptions and are used to solve different types of problems in the field of OT. They theorize that OTPs use EBP to address "hard complexity" problems (Blair & Robertson, 2005, p. 271) and SRP to address "soft complexity" problems (Blair & Robertson, 2005, p. 273) in OT practice. This work provides a different perspective on the relationship between EBP and SRP, suggesting that the

two concepts may be completely different processes (Blair & Robertson, 2005).

In contrast to the views of these researchers, other theorists agree with the evidence previously discussed that SRP is a precursor to EBP (Greber, 2021; Kucharczyk et al., 2019; Lal & Korner-Bitensky, 2013; R. H. Wang et al., 2023). In an opinion piece, Greber (2021) argues that self-reflection allows OTPs to integrate anecdotal wisdom from practice with research evidence to increase their EBP behaviors. Building on this theory, several academics have developed tools that support OTPs to engage in reflective practice as part of the process of achieving EBP (Kucharczyk et al., 2019; Lal & Korner-Bitensky, 2013; R. H. Wang et al., 2023). One group of researchers posited that reflective dialogue would increase EBP in OTPs, specifically the evidence-based behavior of interprofessional collaboration (Kucharczyk et al., 2019). As a result, the group developed a reflective tool that has not yet been tested in practitioners but may eventually provide insight into the relationship between EBP and SRP. Another group of researchers developed a tool for EBP implementation based on the assumption that SRP leads to EBP (R. H. Wang et al., 2023). The theoretical framework highlights SRP's role in ensuring that EBP is ethically applied. This work builds on that of Kucharczyk et al. (2019), describing how SRP can be used by OTPs not only to increase EBP behaviors but also to promote ethical evidence-based practice (R. H. Wang et al., 2023). This tool has also not been tested in practice, so more insights can be gained from understanding how it functions in the field. A final group of researchers hypothesized that motivational interviewing would effectively increase OTPs' EBP, with the mechanism being SRP (Lal & Korner-Bitensky, 2013). All three groups of researchers posit that interventions that increase SRP in OTPs will increase their EBP (Kucharczyk et al., 2019; Lal & Korner-Bitensky, 2013; R. H. Wang et al., 2023).

Summary. When thinkers in OT consider the relationship between SRP and EBP, many conclude that they are connected. This data comes from such diverse sources as focus groups (Jeffery et al., 2021; Kim et al., 2024; Thomas et al., 2024), a practitioner survey (Knightbridge, 2019), and a review of the literature (Lal & Korner-Bitensky, 2013). Many practitioners believe that SRP precedes EBP as either a minor (Jeffery et al., 2021; Thomas et al., 2023) or a major (Knightbridge, 2019; Vachon et al., 2010) part of the EBP process. Other scholars disagree, positing that SRP and EBP are integral to one another but concurrent (Bannigan & Moores, 2009). A final, conflicting viewpoint is that EBP and SRP are entirely separate ways of thinking used to solve different problems in OT practice (Blair & Robertson, 2005). Three tools have been developed based on the hypothesis that SRP precedes EBP: the PERFECT (Menon et al., 2010), an ethical framework for clinical decision-making (R. H. Wang et al., 2023), and a method to promote interprofessional collaboration (Kucharczyk et al., 2019).

Experiential Link between SRP and EBP

The experiential component is the next step in describing the link between SRP and EBP. It is important to understand the experience of OTPs who engage in reflection and knowledge translation and the processes at play in their learning. Three general types of reflective interventions are used to promote EBP: reflective dialogue, critical incident analysis, and critical reflection on practice (Ghaye & Lillyman, 2014).

Reflective Dialogue. Reflective dialogue describes reflection that is done in community: with a mentor (Kinsella et al., 2023), a community of practice (Gallagher et al., 2023; Parsons et al., 2024; Roberts, 2015; van Stormbroek et al., 2024; Welch & Dawson, 2006), or a poster presentation (Vikström et al., 2015). One model of community-based reflection is critical creativity, which was utilized by a group of OTPs conducting a participatory action research

(PAR) project (Kinsella et al., 2023). Techniques such as creative expression, a reflective diary, and critical, creative dialogue with a mentor promoted reflection-on-action and reflection-in-action. At the end of the PAR project, the participants reported that the reflective practices allowed them to see a better way to balance practical constraints with the need to engage in EBP, making them more effective practitioners (Kinsella et al., 2023). This finding is furthered by the work of Vikström et al. (2015), who found that OTPs who created and presented a poster about their EBP activities reported that it helped them sustain the changes in their practice.

Communities of practice (CoPs) are another common strategy to promote reflection (Roberts, 2015). These groups also use reflective dialogue to assess the literature for applicability to OT practice. This technique has been used in a range of settings, such as diabetes care (Parsons et al., 2024), inpatient mental health (Gallagher et al., 2023), schools (Roberts, 2015), and hand therapy (van Stormbroek et al., 2024) to promote knowledge translation. The practitioners in these groups reported that they believed they engaged in more EBP as a result of the CoP (Gallagher et al., 2023; Parsons et al., 2024; Roberts, 2015; van Stormbroek et al., 2024; Welch & Dawson, 2006). In one case, participants of a group reported that participation helped them feel more confident using EBP, which led to them doing it more (Welch & Dawson, 2006). Another group reported that the reflection strengthened their identities as scholarly practitioners, increasing their engagement in EBP (Gallagher et al., 2023). This exploration of intermediary mechanisms provides insight into the skills gained through reflection that may lead to EBP.

Critical Incident Analysis. Another method of reflective practice is critical incident analysis. This targeted form of reflection encourages a practitioner to select a recent event and reflect on what clinical decisions they made and why (Ghaye & Lillyman, 2014). Critical incident analysis has been used to promote the uptake of an evidence-based musculoskeletal pain

intervention in OTPs working in work rehabilitation (Vachon et al., 2010; Vachon & LeBlanc, 2011). Practitioners reported that they used best practices more after the intervention, expressing that reflective practice increased their confidence in their abilities and desire to improve their practice (Vachon & LeBlanc, 2011) and facilitated their use of reflection during clinical decision-making (Vachon et al., 2010). This finding about the role of confidence in linking the effects of SRP to EBP is supported by Welch and Dawson's (2006) work on the importance of self-efficacy as an intermediary between SRP and EBP.

Critical Reflection on Practice. A third method of SRP is critical reflection on practice. Broader than critical incident analysis, practitioners using this method may reflect on patterns throughout their practice instead of focusing on a single event (Ghaye & Lillyman, 2014). OTPs can structure this reflection using an ePortfolio (Foucault et al., 2018), a manualized outcome measure (Hinkley et al., 2022), participation in PAR (Whiteford et al., 2020), or as an interventionist in a clinical trial (Finlayson et al., 2005). In some cases, OTPs reported that the reflection led to an increased ability to critically evaluate best practice guidelines and apply them in a way that was best for the individual needs of the patient (Finlayson et al., 2005; Hinkley et al., 2022; Whiteford et al., 2020). Another group of practitioners who experienced disruption in their practice due to the COVID-19 pandemic reported that this led to reflection, which increased their identity as scholarly practitioners and their use of EBP (Rochette et al., 2024). This finding is supported by Gallagher et al.'s (2023) work about the impact participation in CoPs has on practitioner identity. Foucault et al. (2018) provide contrasting evidence. They studied OTPs who utilized an ePortfolio to reflect on their practice. The participants did not notice a change in EBP (Foucault et al., 2018). This finding suggests that not all types of reflection elicit a change in EBP.

Summary. When OTPs participate in programs designed to increase SRP, they often report experiencing an increase in SRP and EBP. This is true in many types of SRP, including reflective dialogue (Welch & Dawson, 2006), critical incident analysis (Vachon, 2011), and critical reflection on practice (Rochette et al., 2024). Other OTPs do not share the same experience, reporting no change in EBP (Foucault et al., 2018). Some researchers further investigated the relationship between SRP and EBP, analyzing the data for themes regarding the potential mechanism of this relationship (Rochette et al., 2024; Welch & Dawson, 2006). They found that self-efficacy and a strengthened identity as a scholarly practitioner potentially contributed to OTP's increased SRP and EBP, supporting Gallagher et al.'s (2023) theory that SRP strengthens practitioner identity.

Change in EBP Behaviors after SRP

OTPs' perspectives provide one type of information about the relationship between SRP and EBP, but the viewpoints of valued others, such as patients and mentors, provide further insight into EBP (Connolly et al., 2015; De Dios Pérez et al., 2024). One group of OTPs worked with mentors to engage in reflective dialogue while learning a virtual reality intervention in work rehabilitation (De Dios Pérez et al., 2024). Data from emails, training documents, and interviews with the OTPs' mentors revealed OTPs' increased fidelity to the intervention protocol (De Dios Pérez et al., 2024). Another group that included OTPs engaged in PAR to develop community mental health services (Connolly et al., 2015). This PAR project included cyclical periods of action and reflection to increase the uptake of the best practice of client-centered care. Interviews with consumers at the community clinic revealed that the services became more relevant to their needs (Connolly et al., 2015), suggesting that reflection brought about the desired changes.

Objective measures are another way to get an outside opinion on practice (Bazyk et al.,

2015; Machingura & Lloyd, 2017). After participating in a CoP, one group of OTPs demonstrated improved performance on an EBP skills measure (Bazyk et al., 2015). Another group of researchers investigated the effect of reflective dialogue on EBP, finding in chart review data that the reflective strategy decreased the use of restraints and seclusion, which is best practice (Machingura & Lloyd, 2017). Though these researchers measured EBP behaviors, they did not measure SRP, nor did they use control groups, making it difficult to determine the mechanism of change (Bazyk et al., 2015; Connolly et al., 2015; De Dios Pérez et al., 2024; Machingura & Lloyd, 2017). All four groups studied showed increased EBP after participating in reflection, but it is unclear if the reason for that change was SRP.

Summary. Data from external sources, such as mentors, consumers, and chart audits, provide another perspective on the relationship between SRP and EBP. Research from these sources suggests that participation in a reflective intervention increases OTPs' EBP behaviors in a way that is observable to an external party (Bazyk et al., 2015; Connolly et al., 2015; De Dios Pérez et al., 2024; Machingura & Lloyd, 2017). This section of the literature extends the findings from researchers who focused solely on OTPs' experiences, demonstrating the value of reflective practice and EBP.

Practical Link between EBP and SRP

Some researchers have measured EBP and SRP behaviors in OTPs (Krueger et al., 2020; Lowe et al., 2007; Provident et al., 2015). After participating in a continuing education class on vision therapy, all participants increased their EBP behaviors (Lowe et al., 2007). This was true for those who scored low on a reflection measure at baseline and those who scored high, suggesting that pre-intervention reflection did not impact OTPs' EBP skills. In the qualitative arm of this explanatory sequential design, however, the lower-reflecting participants reported a

notable increase in their reflective behaviors from baseline, suggesting that this change in SRP could have supported their change in EBP (Lowe et al., 2007). Krueger et al. (2020) conducted a cross-sectional study, discovering a relationship between SRP and EBP, such that high SRP was associated with high EBP. This supports the idea that SRP and EBP are related. Neither study provides insight into the sequence of this process. It is not clear if the change in reflection precedes the change in EBP, as theorized by some OTPs (Jeffery et al., 2021; Thomas et al., 2023; Vachon et al., 2010), if the processes are concurrent (Bannigan & Moores, 2009), or if a different relationship is at play.

Another group of researchers investigated the practice of OTPs who returned to school for a post-professional doctorate (Provident et al., 2015). Like Krueger et al. (2020) and Lowe et al. (2007), these researchers found that an observable increase in SRP was associated with an increase in EBP (Provident et al., 2015). Further analysis of the data revealed that the type of reflection best aligned with transformative learning, suggesting that this framework can help explain the link between SRP and EBP. The OTPs in this study experienced a disorienting dilemma, similar to the OTPs who worked during the COVID-19 pandemic, triggering reflection and a drastic change in their practice (Rochette et al., 2024). Another key component of transformative learning is a change in self-perception (Mezirow, 1998), observed by several researchers after an SRP intervention (Gallagher et al., 2023; Rochette et al., 2024).

Summary. Extending the findings discussed in the previous section, this section includes results from studies that measured self-reflective behavior in addition to knowledge translation. Cross-sectional analyses revealed a relationship between SRP and EBP (Krueger et al., 2020; Provident et al., 2015). A third study revealed a more complex picture, suggesting that an SRP intervention can address baseline differences in reflection behavior and lead to similar rates of

EBP use (Lowe et al., 2007).

Conclusions

SRP and EBP are both integral practices in OT (Nicola-Richmond et al., 2016; Thomas & Law, 2013). OT theorists have developed many models for the nature of this relationship (Bannigan & Moores, 2009; Menon et al., 2010; Thomas et al., 2023). These models have been corroborated by the experiences of OTPs (Rochette et al., 2024; Welch & Dawson, 2006), their mentors (De Dios Pérez et al., 2024), and consumers of their services (Connolly et al., 2015). The relationship between EBP and SRP is also supported by objective data (Bazyk et al., 2015; Krueger et al., 2020). The temporality of this relationship has yet to be explicated, though most theorists believe that SRP precedes EBP (Knightbridge, 2019; Vachon et al., 2010). Preliminary evidence also exists to suggest a relationship between self-efficacy, professional identity, SRP, and EBP, though more work is needed in this area (Gallagher et al., 2023; Rochette et al., 2024; Welch & Dawson, 2006). Finally, the transformative learning theory provides a potential framework for understanding the link between critical reflection and behavior change toward increased EBP in OTPs (Provident et al., 2015).

Chapter Summary

The TPB has been used to explain human behavior since its introduction in 1985 (Ajzen, 1985). Due to the variety of behaviors and complexity of the psychological mechanisms that underlie it, the application and interpretation of TPB are continually updated and clarified, most recently by Icek Ajzen, the creator, in 2020. One nuance that has emerged in recent years is the importance of self-reflection in elucidating the impact of implicit cognitive factors on behavior. Some theorists have proposed that self-reflection is the mechanism that links TPB to dual-process theory, the idea that both conscious and non-conscious processes drive behavior.

TPB has been used to better understand the clinical and extra-clinical behaviors of OTPs. Given the heterogeneity, different aspects of TPB are more impactful than others in explaining behavior, depending on the behavior and the context. There is no consensus yet on a single group of behavioral drivers that consistently explains the behavior of OTPs.

One area of OTPs' behavior that is of particular interest is EBP. This behavior is integral in facilitating desirable patient outcomes and reducing the human and financial costs of healthcare. Some theorists link SRP and EBP as potentially complementary practices or even necessary to the successful execution of the other. In practice, there is evidence to suggest that SRP and EBP are linked, although the nature of their relationship is not yet clear. Furthermore, the mechanism by which one brings about change in the other is unknown. This study will contribute to the body of knowledge by exploring TPB, SRP, and EBP in combination.

Chapter III

Methodology

Chapter three contains a description of the sample, instruments, data collection procedures, and analysis procedures used to answer the three research questions and sub-questions. The first section describes the research design and lists the research questions. The second section describes the population and sample under investigation in the study. The third section describes the criterion and predictor variables under study and the instruments used to measure them. The fourth section describes the procedure for data collection, including the pilot study and the main study. The final section describes the procedure for data analysis, including the procedure used to investigate the research question and the procedure used to address missing data.

Research Design

This study used a quantitative, non-experimental, cross-sectional design to understand the impact of self-reflective practice (SRP) on occupational therapy practitioners' (OTPs') evidence-based practice (EBP) through the lens of the theory of planned behavior (TPB). This technique is effective for discerning the relationship between an individual's characteristics, attitudes, and reported behavior (Ary et al., 2019). This type of research can provide insight to guide priorities for education and policy formation (Ary et al., 2019).

The following questions guided the study.

1. What are OTPs' self-reported evidence-based practice behaviors?
    a. To what extent do self-reflective practice, attitudes, subjective norms (SN),

perceived behavioral control (PBC), years of experience, degree level, and practice area predict OTPs' evidence-based practice?

2. To what extent does the interaction between self-reflective practice, attitudes, SN, and PBC predict OTPs' evidence-based practice?
3. To what extent does the interaction between self-reflective practice and attitudes predict OTPs' evidence-based practice?
    a. To what extent does the interaction between self-reflective practice and SN predict OTPs' evidence-based practice?
    b. To what extent does the interaction between self-reflective practice and PBC predict OTPs' evidence-based practice?
    c. To what extent does the interaction between attitudes and SN predict OTPs' evidence-based practice?
    d. To what extent does the interaction between attitudes and PBC predict OTPs' evidence-based practice?
    e. To what extent does the interaction between SN and PBC predict OTPs' evidence-based practice?
    f. To what extent does the interaction between self-reflective practice, attitudes, and SN predict OTPs' evidence-based practice?
    g. To what extent does the interaction between self-reflective practice, attitudes, and PBC predict OTPs' evidence-based practice?
    h. To what extent does the interaction between self-reflective practice, SN, and PBC predict OTPs' evidence-based practice?
    i. To what extent does the interaction between attitudes, SN, and PBC predict

OTPs' evidence-based practice?

Population/Sample

All OTPs practicing in Florida at the time of data collection were eligible to participate in the study, and all were contacted for participation during study procedures.

Sample Size, Power, and Precision. My target population consisted of all OTPs in the state of Florida, which comprises 11,990 individuals (US Bureau of Labor Statistics, 2023a, 2023b). I conducted a power analysis using G*Power (Release 3.1.9.7) to determine the target sample size (Faul et al., 2007). The parameters were set to detect a medium effect size ($f^2 = 0.15$) with a significance level of $\alpha = 0.05$ and a power of 0.80. The analysis accounted for 18 predictor variables and 15 tested predictors. Each interaction included in the power analysis was treated as a separate predictor. The analysis resulted in a required minimum sample size of 139 participants to achieve adequate power.

Sampling Procedure. I used Qualtrics survey software (Provo, UT) to send recruitment emails to all OTPs in Florida. I utilized a publicly available database of OTPs' contact information to determine the population under study. I sent three emails over three weeks, at 1-week intervals. I targeted a 1.2% response rate. This would yield 144 participants, which exceeds the target sample size of 139 participants. As part of the study procedures, I collected demographic information. This yielded data that described the area of practice, number of years in practice, and highest degree obtained by the individuals included in the sample. The current values of these three demographic features in the state of Florida were described by the American Occupational Therapy Association in 2023. These trends in OTPs are presented in Table 1.

Table 1

Demographics of OTPs in Florida

Demographic	OTPs in Florida
Years in practice	
1-5	22.5%
6-10	14.1%
11-15	12.5%
16-20	8.7%
21-25	7.5%
26-30	13.5%
31 or greater	21.2%
Area of practice	
Academia and research	9.3%
Home and community	10.2%
Hospital (other than mental health)	24.5%
Long-term care	18.3%
Mental and behavioral health	0.5%
Schools, early intervention, and community education	14.8%
Outpatient clinic	20.8%
Other	1.8%
Degree level	
Certificate	0.5%
Associate degree	13.5%
Baccalaureate degree	18.7%
Master's degree	49.4%
Post-professional doctorate (PP-OTD)	5.6%
Professional doctorate (OTD)	9.3%
Research doctorate (e.g., PhD, ScD)	2.4%
Other	0.6%

Note. From *AOTA 2023 workforce and compensation survey report*, by American Occupational Therapy Association, 2023. PP-OTD = Post-professional occupational therapy doctorate; OTD = occupational therapy doctorate.

Variables and Instrumentation

Criterion Variable. The criterion variable in this study is the self-reported evidence-

based practice behavior of OTPs.

I measured EBP using the EBP Implementation Scale (Melnyk et al., 2008). This 18-item scale measures current practices related to research utilization. The authors found that this measure has acceptable reliability, with Cronbach's alpha of .96 in a sample of 319 healthcare workers. The scale also has acceptable construct and criterion validity (Melnyk et al., 2008). This measure has been used to assess the EBP behaviors of OTPs in prior work (Bar-Nizan et al., 2024; Hitch et al., 2019; Krueger et al., 2020; Moyers et al., 2014). The EBP Implementation Scale has been used longitudinally to measure changes in EBP due to an intervention (Hitch et al., 2019; Moyers et al., 2014). It has also been used cross-sectionally to capture OTPs' behaviors (Bar-Nizan et al., 2024; Krueger et al., 2020). Like these authors, I used a cross-sectional design to capture information about OTPs' EBP behaviors. Hitch et al. (2019) used both the EBP Implementation Scale and another validated EBP scale, the Evidence-Based Practice Attitude Scale (Aarons, 2004), but did not compare the two, so the relationship of this scale to other measures of EBP in OTPs is not yet known (Hitch et al., 2019).

Predictor Variables. The predictor variables in this study are OTPs' self-reported self-reflection behavior, attitudes about EBP, SN about EBP, PBC of EBP, years in practice, area of practice, and degree level.

Self-Reflective Practice. I measured self-reflection using the self-reflection subscale of the Self-Reflection and Insight Scale (Grant et al., 2002). This 12-item scale measures engagement in reflective activities. The authors created this measure using factor analysis and then used it on 260 participants. The researchers found that two factors, self-reflection and insight, accounted for 56% of the total variance, thus justifying their decision to utilize two subscales. This subscale exhibits appropriate reliability, as indicated by a Cronbach's alpha of

.91 (Grant et al., 2002). This measure has been used to assess self-reflective behaviors in OTPs in the context of promoting EBP (Knightbridge, 2019; Krueger et al., 2020; Lowe et al., 2007). Notably, Krueger et al. (2020) used this scale in combination with the EBP Implementation Scale, finding that those with higher reports of self-reflection also reported higher EBP.

Attitudes, Subjective Norms, and Perceived Behavioral Control. I measured attitudes, SN, and PBC of EBP using the Evidence-Based Practice Inventory (Kaper et al., 2015). This 26-item scale measures individuals' attitudes, SN, PBC, intention and behavior, and clinical decision-making. However, the first three subscales were the focus of this work. The authors conducted a Delphi study to elicit feedback on the measure from experts in EBP. The measure was tested on 128 clinicians to establish initial reliability and validity. The authors reported that this scale has a Cronbach's alpha of "good or excellent" (Kaper et al., 2015, p. 1265) on all subscales, although the specific values were not reported. Another group of researchers investigated the reliability of this scale in occupational therapists, finding Cronbach's alpha of 0.89, 0.80, and 0.90 on the axes of attitudes, SN, and PBC, respectively (Braun et al., 2019). The intraclass correlations for the subscales are 0.53, 0.63, and 0.83 for attitudes, SN, and PBC, respectively (Kaper et al., 2015). This scale has been used cross-sectionally in a sample of allied health professionals that included OTPs to describe their perceived barriers and facilitators to EBP implementation (Ehrenbrusthoff et al., 2022).

Demographics. I collected data describing OTPs' demographic characteristics, including their years in practice, area of practice, and degree level. I used a survey created for this study to collect this data, an approach commonly used in the literature (American Occupational Therapy Association, 2023; Cardin & Hudson, 2018; Krueger et al., 2020; Y. Wang et al., 2019). Other researchers have found associations between EBP and degree level (Engels et al., 2020), practice

area (Thomas et al., 2023), and years in practice (Klaic et al., 2018), highlighting the importance of understanding the distribution of these factors in my respondents.

Pilot Study

I conducted a pilot study to understand better the formatting of the questions, the flow through the survey, and the expected duration. In the first phase of the pilot study, I consulted an interprofessional panel of rehabilitation professionals (one occupational therapist, three physical therapists, and a rehabilitation engineer) to determine the comprehensibility of the EBP Inventory. I presented the panel with three formatting options and asked them to choose the most comprehensible option in both the mobile and desktop versions of Qualtrics survey software (Provo, UT).

Next, I contacted a group of 12 currently practicing OTPs who met all inclusion criteria for the study except for licensure in the state of Florida. I contacted these participants via email and provided them with a link to a pilot version of the study. The survey was identical to the survey sent out to the target sample. I asked the pilot testers to provide qualitative feedback about measure order, survey length, and survey formatting. I also investigated the duration and number of extreme responses to understand the flow through the survey.

Procedure

This study utilized a cross-sectional survey design (Ary et al., 2019). After IRB approval (Appendix A), participants were identified through the licensing board for the State of Florida. I used Qualtrics (Provo, UT) to send via email the consent information (Appendix B) and the 59-item survey, including the demographic survey (3 items, Appendix C), EBP Implementation Scale (18 items, Appendix D), the self-reflection subscale Self-Reflection and Insight Scale (12 items, Appendix E), and the Evidence-Based Practice Inventory (26 items, Appendix F).

Data Analysis

Research Question One and Sub-Question. What are OTPs' self-reported EBP behaviors? For this descriptive research question, I used descriptive statistics, including centrality and variance measures. All statistical tests were conducted in SPSS version 29, unless otherwise stated. I used mean and standard deviation to describe the self-reported EBP behaviors of OTPs (McDonald, 2014).

I repeated this process with subgroups of OTPs. Subgroups included the number of years of practice, in increments of five years, practice area, and degree level. These subgroups are frequently used in the literature and allow comparison between the respondents in the present study and those investigated by other researchers (Krueger et al., 2020; Y. Wang et al., 2019). I used the descriptive statistic procedure outlined in the previous paragraph to describe the EBP in each group based on these characteristics.

Research Question Two. To what extent do self-reflective practice, attitudes, subjective norms (SN), perceived behavioral control (PBC), years of experience, degree level, and practice area predict OTPs' evidence-based practice? I conducted a best subsets linear regression analysis in R using version 4.5.1 to determine the factors that predict EBP. I checked the assumptions of outliers, normality, linearity, multicollinearity, and homoscedasticity to determine the appropriateness of a linear regression (Field, 2009). Outliers were tested using Cook's distance (Field, 2009). Normality of residuals was tested using the Shapiro-Wilk test (Navarro, 2019). Homoscedasticity was investigated using a scatterplot of the standardized residuals and the standardized predicted values (Rosopa et al., 2013). Multicollinearity was tested using the variance inflation factor (VIF) values (Daoud, 2017). Based on these analyses, I decided to use a linear regression technique (Navarro, 2019).

Research Question Three and Sub-Questions. To what extent does the interaction between self-reflective practice, attitudes, SN, and PBC predict OTPs' evidence-based practice? The sub-questions concern all potential interactions between the four predictors of interest. Prior to running the regression, I converted all nominal data into dummy-coded variables to make them appropriate for inclusion in regression analysis (James et al., 2021). Then I checked the statistical assumptions for a linear regression using the protocol described in the prior section and then decided to use a best-subsets linear regression to investigate this research question.

Multiple Regression Model. Evidence-based practice = a + b [self-reflective practice] + b [attitudes] + b [SN] + b [PBC] + b [years in practice] + b [area of practice] + b [degree level] + b [self-reflective practice*attitudes*SN*PBC] + b [self-reflective practice*attitudes] + b [self-reflective practice*SN] + b [self-reflective practice*PBC] + b [attitudes*SN]+ b [attitudes*PBC] + b [SN*PBC] + b [self-reflective practice*attitudes*SN] + b [self-reflective practice*attitudes*PBC] + b [self-reflective practice*SN*PBC] + b [attitudes*SN*PBC].

Missing Data. I categorized missing data based on the recommendations set out by Newman (2014) and Schafer and Graham (2002). Little's MCAR Test (Little, 1988) was used to investigate the possibility of the data being missing completely at random (MCAR). Binomial regressions were used to examine the possibility of the data being missing at random (MAR), according to the definition of MAR data (Enders, 2025; Schafer & Graham, 2002). Multiple imputation by fully conditional specification (Liu & De, 2015) was used to impute missing data points. Multiple imputation has been used extensively in survey research to handle missing data points (Austin et al., 2021; Bennett, 2001; Newman, 2014), even in cases of large amounts of missing data (Musil et al., 2002), or with construct-level missingness (Madley-Dowd et al., 2019). I used Rubin's rules (Rubin, 1987) to pool the imputed data sets.

Chapter Summary

This chapter described the research design for investigating EBP behaviors in OTPs. The study employed a cross-sectional survey to gather data on OTPs' cognitions regarding EBP, including their attitudes, social norms, and perceived behavioral control. The participants also provided information about their demographics, self-reported EBP, and self-reflective practice behaviors. A multiple linear regression was used to determine which of these factors and which relationships between these factors predict EBP.

Chapter IV

Results

Chapter four presents the study's results. The first section presents the results of the pilot study. The second section presents the results of the missing data analysis, along with a discussion of the methods employed to address missing data and a rationale for the decisions made. The third section presents the results of the instrument reliability tests. The fourth section presents the descriptive statistics for the measures used in the study, expressed using mean and standard deviation and the results of analyses conducted to understand the impact of temporality of response on the participants' responses. The fifth section presents the results of research question 1, which explore the evidence- based practice (EBP) behaviors of occupational therapy practitioners (OTPs) based on area of practice, highest degree level, and years of experience. The next section presents the assumption checks completed on the data and the subsequent determination of which regression model to use. The following section presents the results of the best-subsets linear regression model, addressing research question 2. The final section continues the reporting of the best-subsets linear regression model, focusing on the results that answer research question 3 and its sub-questions.

Pilot Study Results

Before sending out the survey, I consulted an interprofessional panel of rehabilitation professionals (one occupational therapist, three physical therapists, and a rehabilitation engineer) to determine the comprehensibility of the EBP Inventory. This panel was contacted to provide feedback on the native Qualtrics formatting for semantic differential questions in the mobile

option. The panel unanimously selected the formatting given three choices, though concerns regarding the lack of labels on options 2-5 were voiced. The panel was concerned that participants would be more likely to select the extreme options because they had labels, while the intermediate options did not.

Due to my concerns regarding the mobile option for this survey, I specifically requested half of my participants to complete the survey with the mobile option and half to complete it using the desktop interface. Participants (n = 10) completed the pilot survey in an average of 10.6 minutes (SD = 4.6), with completion times ranging from 5.5 to 17.2 minutes. This suggests the survey was generally manageable in length and did not impose a significant time burden on respondents.

To evaluate response behavior, particularly the use of extreme responses (i.e., selecting the lowest or highest value on the Likert-type items), I reviewed patterns across the three individual surveys: Self-Reflection and Insight Subscale (SRIS), EBP Inventory (EBPI), and EBP Implementation Scale (EIS). The EIS showed a high frequency of extreme agreement responses, with 6/10 participants selecting the maximum or minimum score on at least half of the items. In contrast, the SRIS and EBPI elicited responses with fewer extreme values (1/10 and 0/10, respectively).

The lack of extreme scores in the EBPI suggests that the formatting of the semantic differential questions does not disproportionately encourage extreme responses and this format is appropriate for my study.

Responses

There were 345 respondents over the three weeks of survey collection. This is a 2.9% response rate. My sample of 345 respondents well exceeds the number of participants identified in the power analysis as necessary to find statistically significant results, which was 139. The

three emails were sent at one-week intervals. To understand the impact of response time on features of the response, participants were separated into three groups, described in Table 2. The early group (42.4%) responded after the initial recruitment email but before the first reminder email. The late group (21.9%) responded after the first reminder and before the second reminder. The last-minute group (35.8%) responded after the third reminder email.

Table 2

Frequency of Early, Late, and Last-Minute Responders in the Sample

	n	%
Early responder	122	42.4
Late responder	63	21.9
Last-minute responder	103	35.8

Missingness

Missing data were present in the sample at both the item and construct level (Newman, 2014). Missing data in a single participant ranged from 0%-100%. Participants who had 100% missing data had opened the link but not answered any survey questions. There were 54 such participants, and they were all removed. Chi-square testing revealed that there were no statistically significant differences between participants who had completed any survey questions and participants who had completed no survey questions on the time at which they completed the survey (early, late, or last minute), $X^2(2) = 0.20$, $p = .90$. Once the participants with 100% missing data were removed, there remained 288 participants. This still exceeds the number identified by the power analysis (139) as necessary to draw conclusions about the population. In this group, 8% of all total data points were missing. Missing data in a single participant ranged from 0%-89.8%. Even at the highest level of missingness, all participants had filled out at least one full subtest of one of the measures, which Madley-Dowd et al. (2019) suggest is enough to

guide the use of multiple imputation if data are missing completely at random (MCAR) or missing at random (MAR). Missing data in a single response item ranged from 0%-14.6%. To assess the mechanism of missingness, Little's MCAR test was performed on the variables with missing data. The test was statistically significant, $X^2(1689) = 1886.37$, $p = .001$. This suggests that the data are not MCAR. Binary logistic regressions revealed that the property of missingness in each variable with multiple missing observations was able to be predicted by other variables in the dataset, suggesting that the data are MAR. Therefore, the assumptions of MAR data were applied to this dataset, and the analysis was conducted according to the recommendations of Enders (2025).

Multiple imputation by fully conditional specification (Liu & De, 2015) was utilized to create 5 datasets with imputed data for the missing variables. I used a multivariate analysis of variance to compare the imputations to the original data and found no differences between the datasets. Rubin's rules (Rubin, 1987) were used to create a pooled value for all analyses. These values are presented.

Demographic Features of the Participants

Table 3 presents the demographic features of the participants, including their area of practice, number of years of experience, and degree level. Because these values are the pooled values from the multiple imputation, the count values are not all whole numbers. Chi-square tests were conducted to compare the data collected with the data available from the American Occupational Therapy Association's (AOTA's) national survey of OTPs (American Occupational Therapy Association, 2023). The analyses compared the observed values in each category with the known numbers of the larger population of OTPs in Florida. All *p*-values were greater than .05, suggesting that there are no statistically significant differences between the demographics of

this sample and the population. This suggests that the sample is representative of the population of OTPs in Florida.

Table 3

Demographic Characteristics of Participants

Characteristic	*n*	%
Area of practice		
Academia and research	15.6	5.42
Home and community	40.6	14.10
Hospital	46.0	15.97
Long-term care	32.0	11.11
Mental and behavioral health	14.6	5.07
Schools, EI, community education	44.0	15.28
Outpatient	79.0	27.43
Other	16.2	5.63
Experience		
<1 year	11.8	4.10
1-5 years	41.4	14.38
6-10 years	24.0	8.33
11-15 years	21.0	7.29
16-20 years	25.4	8.82
21-25 years	28.6	9.93
26-30 years	48.8	16.94
31 or greater	87.0	30.21
Degree level		
Baccalaureate degree	83.0	28.82
Master's degree	124.8	43.33
Post-professional doctorate (PP-OTD)	16.6	5.76
Professional doctorate (OTD)	34.0	11.81
Research doctorate (e.g., PhD, ScD)	11.8	4.10
Other	17.8	6.18

Note. EI = Early intervention; PP-OTD = Post-professional occupational therapy doctorate; OTD = occupational therapy doctorate.

The majority of participants work in outpatient (27.43%), with the second largest number working in hospitals (15.97%), followed by schools, early intervention, and community

education (15.28%). The majority of respondents have 31 or greater years of experience (30.21%), followed by 26-30 years (16.94%), and 1-5 years (14.38%). The majority of respondents have a master's degree (43.33%). The second largest group of participants has a baccalaureate degree (28.82%), followed by a professional doctorate (11.81%). Notably, none of the respondents in the sample have a certificate or an associate's degree as their highest level of education. The large number of respondents with a baccalaureate and master's degree is understandable given the large number of participants who work in clinical settings such as schools and hospitals. Doctoral-level degrees are not required to work in clinical settings. The only work setting for OTPs that requires a doctorate degree is academia (Accreditation Council for Occupational Therapy Education, 2020).

Instrument Reliability

Cronbach's Alpha was used to establish the internal consistency for each instrument used (Table 4). Cronbach's Alpha coefficient is acceptable at .70 or higher. All the measures used for this study had appropriate internal consistency.

Table 4

Reliability of Instruments Used

Measurement Scale	Cronbach's Alpha
Self-Reflection and Insight Scale	.92
EBP Inventory- Attitude	.94
EBP Inventory- Subjective Norms	.89
EBP Inventory- Perceived Behavioral Control	.92
EBP Implementation Scale	.94

Note. EBP = Evidence-Based Practice.

Descriptive Statistics

Table 5 presents descriptive statistics for the constructs measured in the study. The mean score on the Self-Reflection and Insight Scale (SRIS) was 59.27 (SD = 9.64), indicating that on

average, participants answered "agree" to the prompts, indicating that they engage in self-reflective practice (SRP). The mean score on the EBP Inventory- Attitude subscale (EBPIA) was 39.17 (*SD* = 7.75), indicating that on average, participants endorsed positive attitudes about EBP. The mean score on the EBP Inventory- Subjective Norms subscale (EBPISN) was 21.02 (*SD* = 5.84), indicating that on average, participants reported mildly positive subjective norms about EBP. The mean score on the EBP Inventory- Perceived Behavioral Control subscale (EBPIPBC) was 29.60 (*SD* = 5.76), indicating that on average, participants reported positive feelings of perceived behavioral control over EBP. The mean score on the EBP Implementation Scale (EIS) was 19.80 (*SD* = 14.92), indicating that on average, participants reported engaging in most of the EBP activities more than three times but less than five times in the past eight weeks. The high standard deviation value indicated that there is considerable heterogeneity in the sample on this behavior.

Table 5

Description of Participants' Responses on Each Measure

Measure	*M*	*SD*
Self-Reflection and Insight Scale	59.27	9.64
EBP Inventory- Attitude	39.17	7.75
EBP Inventory- Subjective Norms	21.02	5.84
EBP Inventory- Perceived Behavioral Control	29.60	5.76
EBP Implementation Scale	19.80	14.92

Note: n = 288. EBP = Evidence-Based Practice.

Temporality of Response Analysis

Analyses were conducted to understand the differences in participants' responses to the measures based on when they answered the survey questions. Participants were split into three groups; early, late, and last-minute responders. The early group was the group that responded after the first recruitment email and before the second email. The late group responded after the

second recruitment email and before the third email. Finally, the last-minute group responded after the third recruitment email and before the end of the survey. Shapiro-Wilk tests were used to determine if each group's data for each outcome measure (SRIS, EBPIA, EBPISN, EBPIPC, and EIS) were normally distributed. This suggests that the responses a participant gave were not related to time of response. An alpha level of .05 was used for all normality analyses. The Shapiro-Wilk tests revealed that all subgroups had non-normally distributed data on all measures (all $p < .001$). The Kruskal Wallis test, a non-parametric alternative to the one-way analysis of variance (McDonald, 2014), was used to analyze the impact of response time on participant responses on all outcome measures of interest. An alpha level of .05 was used for all analyses. Table 6 presents the mean ranks for each group and Table 7 presents the results of the Kruskal Wallis test.

Table 6

Mean Ranks of Respondents on Outcome Measures

Measure	Group	Mean rank
Self-Reflection and Insight Scale	Early responder	147.82
	Late responder	148.59
	Last-minute responder	136.70
EBP Inventory- Attitude	Early responder	150.08
	Late responder	131.38
	Last-minute responder	144.76
EBP Inventory- Subjective Norms	Early responder	144.54
	Late responder	149.15
	Last-minute responder	140.17
EBP Inventory- Perceived Behavioral Control	Early responder	148.79
	Late responder	142.33
	Last-minute responder	139.46
EBP Implementation Scale	Early responder	147.44
	Late responder	160.72
	Last-minute responder	129.60

Note. EBP = Evidence-Based Practice.

Table 7

Results of the Kruskal Wallis Test

Measure	χ^2	*df*	*p*
Self-Reflection and Insight Scale	1.25	2	.53
EBP Inventory- Attitude	2.17	2	.43
EBP Inventory- Subjective Norms	0.50	2	.78
EBP Inventory- Perceived Behavioral Control	0.76	2	.69
EBP Implementation Scale	5.92	2	.06

Note. EBP = Evidence-Based Practice.

There were no statistically significant differences between participants who responded at different time points and their responses on the SRIS, $\chi^2(2) = 1.25$, $p = .53$, with a mean rank SRIS score for the early responder group of 147.82, the late responder group of 148.59, and the last-minute responder group of 136.70. This suggests that the responses a participant gave were not related to time of response. There were no statistically significant differences between participants who responded at different time points and their responses on the EBPIA, $\chi^2(2) = 2.17$, $p = .34$, with a mean rank EBPIA score for the early responder group of 150.08, the late responder group of 131.38, and the last-minute responder group of 144.76. This suggests that the responses a participant gave were not related to time of response. There were no statistically significant differences between participants who responded at different time points and their responses on the EBPISN, $\chi^2(2) = 0.50$, $p = .78$, with a mean rank EBPISN score for the early responder group of 144.54, the late responder group of 149.15, and the last-minute responder group of 140.17. This suggests that the responses a participant gave were not related to time of response. There were no statistically significant differences between participants who responded at different time points and their responses on the EBPIPBC, $\chi^2(2) = 0.76$, $p = .67$, with a mean rank EBPIPBC score for the early responder group of 148.79, the late responder group of 142.33,

and the last-minute responder group of 139.46. This suggests that the responses a participant gave were not related to time of response. There were no statistically significant differences between participants who responded at different time points and their responses on the EIS, $\chi^2(2) = 5.92$, $p = .06$, with a mean rank EIS score for the early responder group of 147.44, the late responder group of 160.72, and the last-minute responder group of 129.60. This suggests that the responses a participant gave were not related to time of response.

Research Question 1. What are OTPs' self-reported EBP behaviors?

The participants were separated into groups based on their demographic characteristics. Then I examined their scores on the outcome measures.

Area of Practice

Table 8 shows the descriptive statistics for each of the predictor and criterion variables, separated by area of practice. The group that reported the highest level of self-reflective practice were OTPs who work in schools, early intervention, and community education ($M = 59.99$, $SD = 8.64$). The group that reported the lowest level of self-reflective practice were OTPs who work in academia and research ($M = 55.79$, $SD = 10.12$). However, the OTPs who work in academia and research reported the highest level of the precursor factors to EBP: attitudes, subjective norms, and perceived behavioral control (EBPIA $M = 41.07$, $SD = 5.67$; EBPISN $M = 22.87$, $SD = 5.76$; EBPIPBC $M = 31.06$, $SD = 4.95$). The group who works in academia and research also reported the highest level of EBP behavior ($M = 31.13$, $SD = 11.27$) out of all of the practice areas included in the analysis.

The group that reported the least positive attitudes about EBP were OTPs who practice in an area not encompassed by the given categories ($M = 38.05$, $SD = 7.35$). The group that reported the second lowest attitudes about EBP were OTPS who practice in mental and

behavioral health (*M* = 38.34, *SD* = 9.23). The group that reported the least supportive social norms about EBP were OTPs working in mental and behavioral health (*M* = 16.80, *SD* = 8.56). This group also reported the lowest level of perceived behavioral control over their EBP (*M* = 27.35, *SD* = 4.86). The group that reported the lowest level of EBP behavior were OTPs who work in long-term care (*M* = 13.18, *SD* = 11.40).

Table 8

Description of Participants' Responses on Each Measure, Separated by Area of Practice

Area of Practice	*n*	SRIS *M* (*SD*)	Att *M* (*SD*)	SN *M* (*SD*)	PBC *M* (*SD*)	EIS *M* (*SD*)
Academia and research	15.6	55.8 (10.1)	41.1 (5.7)	22.9 (5.8)	31.1 (5.0)	31.1 (11.3)
Home and community	40.6	58.9 (9.1)	39.4 (7.5)	20.1 (5.9)	29.9 (5.8)	20.2 (16.0)
Hospital	46	59.3 (8.8)	38.7 (7.8)	18.1 (8.5)	28.9 (6.3)	17.8 (16.0)
Long-term care	32	59.1 (10.1)	39.0 (7.5)	17.8 (8.9)	27.9 (7.6)	13.2 (11.4)
Mental and behav. health	14.6	59.0 (9.0)	38.3 (9.2)	16.8 (8.6)	27.4 (4.9)	25.8 (13.2)
School, EI, community education	44	60.0 (8.6)	40.4 (7.8)	18.5 (7.7)	29.9 (4.3)	19.1 (13.9)
Outpatient	79	60.0 (10.3)	38.7 (8.2)	22.5 (6.1)	30.5 (5.5)	20.2 (14.8)
Other	16.2	59.6 (12.4)	38.1 (7.4)	20.5 (6.8)	30.0 (5.6)	19.9 (16.5)

Note. Behav. health = behavioral health; EI= early intervention; SRIS = Self-Reflection and Insight Scale; Att = Evidence-Based Practice Inventory- Attitude; SN = Evidence-Based Practice Inventory- Subjective Norm; PBC = Evidence-Based Practice Inventory- Perceived Behavioral Control; EIS = Evidence-Based Practice Implementation Scale.

Highest Degree Level

Table 9 shows the descriptive statistics for each of the predictor and criterion variables, separated by highest degree. The group that reported the highest level of reflection were OTPs who have post-professional occupational therapy doctorate degrees (M = 60.77, SD = 7.93). The group that reported the lowest level of reflection were OTPs who have a bachelor's degree (M = 57.64, SD = 10.72).

The group that reported the most positive attitudes about EBP were OTPs with professional doctorates in occupational therapy (M = 41.54, SD = 6.83). The group that reported the least positive attitudes about EBP were OTPs who had credentials not encompassed by the given categories (M = 38.49, SD = 8.75). This group also reported the lowest values for the remaining precursor factors (EBPISN M = 18.05, SD = 5.00; EBPIPBC M = 26.57, SD = 5.04). The group that reported the second lowest positive attitudes about EBP were OTPs with a master's degree (M = 38.63, SD = 7.90). the group that reported the second lowest SN and PBC of EBP were OTPs with a research doctorate (EBPISN M = 18.45, SD = 6.50; EBPIPBC M = 29.98, SD = 5.67). The group that reported the most supportive social norms about EBP were OTPs with post-professional occupational therapy doctorates (M = 23.16, SD = 6.36). The group that reported the highest level of perceived behavioral control over their EBP behavior were OTPs with professional doctorates in occupational therapy (M = 32.09, SD = 5.21).

The group that reported the highest level of EBP behavior were OTPs with post-professional occupational therapy doctorates (M = 34.33, SD = 15.02). The group that reported the lowest level of EBP behavior were OTPs with bachelor's degrees (M = 14.08, SD = 12.68).

Table 9

Description of Participants' Responses on Each Measure, Separated by Highest Degree Level

Highest Degree Level	*n*	SRIS *M* (*SD*)	Att *M* (*SD*)	SN *M* (*SD*)	PBC *M* (*SD*)	EIS *M* (*SD*)
Bachelor's	83	57.6 (10.7)	38.7 (7.6)	21.2 (5.6)	29.5 (5.7)	14.1 (12.7)
Master's	124.8	60.7 (8.8)	38.6 (7.9)	20.8 (5.7)	29.5 (5.9)	17.9 (13.5)
PP-OTD	16.6	60.8 (7.9)	40.7 (7.8)	23.2 (6.4)	30.1 (5.7)	34.3 (15.0)
Professional doctorate	34	59.0 (10.5)	41.5 (6.8)	23.0 (5.9)	32.1 (5.2)	25.6 (18.9)
Research doctorate	11.8	57.7 (9.5)	39.3 (7.9)	18.5 (6.5)	29.0 (5.7)	26.6 (10.7)
Other	17.8	58.3 (8.1)	38.5 (8.8)	18.1 (5.0)	26.6 (5.0)	30.0 (9.1)

Note. PP-OTD = post-professional OTD; SRIS = Self-Reflection and Insight Scale; Att = Evidence-Based Practice Inventory- Attitude; SN = Evidence-Based Practice Inventory-Subjective Norms; PBC = Evidence-Based Practice Inventory- Perceived Behavioral Control; EIS = Evidence-Based Practice Implementation Scale.

Years of Experience

Table 10 shows the descriptive statistics for each of the predictor and criterion variables, separated by years of experience. The group that reported the highest level of reflection were OTPs who have been practicing for 16-20 years (M = 62.38, SD = 7.45). The group that reported the lowest level of reflection were OTPs who have been practicing for 26-30 years (M = 58.34, SD = 10.98).

The group that reported the most positive attitudes about EBP were OTPs who have been practicing for less than one year (M = 42.75, SD = 5.34). The group that reported the least positive attitudes about EBP were OTPs who have been practicing for 6-10 years (M = 37.52, SD = 8.10). This group also reported the lowest values for the remaining precursor factors (EBPISN M = 17.35, SD = 8.54; EBPIPBC M = 27.40, SD = 5.65). The group that reported the most

supportive social norms about EBP were OTPs who have been practicing for 31 years or more (*M* = 21.67, *SD* = 5.98). The group that reported the highest level of perceived behavioral control over their EBP behavior were OTPs who have been practicing for 31 years or more (*M* = 30.75, *SD* = 5.21).

The group that reported the highest level of EBP behavior were OTPs who have been practicing for less than one year (*M* = 29.14, *SD* = 19.48). The group that reported the lowest level of EBP behavior were OTPs who have been practicing for 21-25 years (*M* = 16.16, *SD* = 11.11).

Table 10

Description of Participants' Responses on Each Measure, Separated by Years of Experience

Years of Experience	*n*	SRIS *M* (*SD*)	Att *M* (*SD*)	SN *M* (*SD*)	PBC *M* (*SD*)	EIS *M* (*SD*)
<1	11.8	62.2 (9.7)	42.8 (5.3)	21.4 (6.0)	30.3 (6.3)	29.1 (19.5)
1-5	41.4	60.0 (8.6)	39.3 (7.0)	20.7 (5.7)	29.8 (6.4)	16.2 (12.1)
6-10	24	58.8 (7.7)	37.5 (8.1)	17.4 (8.5)	27.4 (5.7)	27.7 (15.5)
11-15	21	56.2 (9.1)	37.6 (8.5)	18.6 (9.7)	28.1 (6.0)	20.6 (13.3)
16-20	25.4	62.4 (7.5)	39.7 (7.5)	19.3 (8.2)	29.1 (6.0)	25.2 (17.7)
21-25	28.6	58.5 (7.5)	38.3 (6.6)	17.7 (9.2)	28.1 (6.1)	16.2 (11.1)
26-30	48.8	58.3 (11.0)	38.3 (8.6)	21.5 (5.6)	30.3 (4.8)	17.4 (15.2)
31+	87	59.4 (10.9)	40.1 (7.9)	21.7 (6.0)	30.8 (5.5)	18.6 (14.6)

Note. SRIS = Self-Reflection and Insight Scale; Att = Evidence-Based Practice Inventory-Attitude; SN = Evidence-Based Practice Inventory- Subjective Norms; PBC = Evidence-Based Practice Inventory- Perceived Behavioral Control; EIS = Evidence-Based Practice Implementation Scale.

Regression Assumption Checks

The factors investigated by the regression were tested to determine if they met the assumptions of the regression. The residuals were not normal, as all Shapiro-Wilk tests were statistically significant. Large VIF values suggested that multicollinearity was present in the data. Small Cook's distances indicated that there were no notable outliers in the data. Scatterplots of the standardized residuals and predicted values supported the conclusion that the assumption of homoscedasticity was met.

Regression Model Variable Selection

Both a stepwise regression and a best subsets regression were conducted to understand multiple perspectives on potential variables to include in the final regression model. I chose the best subsets regression because it is more robust to violations of multicollinearity than the stepwise regression (Ruengvirayudh & Brooks, 2016), and it outputted models that were more in line with the theoretical understanding of the appropriate variables to include in the model. Theoretical understanding of the phenomena under study is a key part of variable selection (Greenland, 1989; Ruengvirayudh & Brooks, 2016). Among the best subsets I selected the model that optimized the adjusted R^2, parsimony, and alignment with the theoretical understanding of EBP.

Research Question 2. To what extent do self-reflective practice, attitudes, subjective norms (SN), perceived behavioral control (PBC), years of experience, degree level, and practice area predict OTPs' evidence-based practice?

The final regression model included both main effects and interactions of the predictor variables. Table 11 displays the Pearson correlation coefficients for the scale predictor variables included in the model.

Table 11

Correlations Between the Scale Predictor Variables

	M	SD	1	2	3	4	5	6	7	8	9	10
1. SRIS	59.27	9.64	—									
2. PBC	15.86	4.53	.19*	—								
3. SRIS*Att	2336.89	642.56	.71*	.45*	—							
4. SRIS*SN	1254.18	429.78	.59*	.51*	.70*	—						
5. Att*SN	845.75	339.37	.20*	.58*	.67*	.84*	—					
6. Att*PBC	1181.33	383.09	.22*	.85*	.74*	.59*	.80*	—				
7. SN*PBC	640.09	255.73	.18*	.79*	.50*	.84*	.90*	.78*	—			
8. SRIS*Att*SN	50779.74	23330.49	.51*	.56*	.83*	.94*	.94*	.76*	.84*	—		
9. Att*SN*PBC	26168.54	13454.56	.21*	.75*	.65*	.81*	.97*	.88*	.96*	.91*	—	
10. EIS	19.80	14.92	.09	.30*	.27*	.36*	.41*	.36*	.41*	.39*	.43*	—

Note. n = 288. SRIS = Self-Reflection and Insight Scale; Att = Evidence-Based Practice Inventory- Attitude; SN = Evidence-Based Practice Inventory- Subjective Norms; PBC = Evidence-Based Practice Inventory- Perceived Behavioral Control; EIS = Evidence-Based Practice Implementation Scale.

*$p < .01$.

Linear multiple regression was performed to determine if demographic characteristics, self-reflection, and precursor factors were statistically significant predictors of EBP behavior. The model significantly predicted EBP behavior, $R^2 = .45$ $R^{2adj} = .39$, F (16, 287) = 12.62, $p <$ .001 (see Table 12). Table 13 displays the coefficients of the regression model, separated by predictor variables. The following main effect predictors contributed significantly to the model: SRIS scores (B = -3.70, t = -3.42, p = .001), EBPIPBC scores (B = 5.90, t = 2.86, p = .004), bachelor's degree (B = -15.97, t = -5.01, $p < .001$), master's degree (B = -11.93, t = -3.86, p = .002), long-term care (B = -5.84, t = -2.50, p = .01), and 1-5 years in practice (B = -5.47, t = -

2.12, $p = .04$) (see Table 12). The following categorial predictors did not contribute significantly to the model: professional doctorate degree, 6-10 years in practice, and 21-25 years in practice.

Table 12

Results of the Regression Model for EIS

	SS	*df*	MS	*F*	*p*
Regression	27325.27	16	1707.83	12.62	< .001
Residual	36636.38	271	135.19		
Total	63961.65	287			

Note. EIS= Evidence-Based Practice Implementation Scale

Table 13

Coefficients of the Regression Model for EIS

	B	95% CI for *B*		*SE B*	β	*t*	*p*
		LL	*UL*				
Intercept	59.51	29.41	89.61	15.35		3.88	< .001
SRIS	-3.70	-5.82	-1.58	1.08	-2.39	-3.42	.001
PBC	5.90	1.86	9.95	2.06	2.28	2.86	.004
Interaction SRIS*Att	0.09	0.04	0.14	0.03	3.83	3.25	.001
Interaction SRIS*SN	0.21	0.10	0.33	0.06	6.05	3.59	< .001
Interaction Att*SN	-0.06	-0.10	-0.02	0.02	-1.31	-2.85	.004
Interaction Att*PBC	-0.17	-0.28	-0.07	0.06	-4.45	-3.17	.002
Interaction SN*PBC	-0.40	-0.62	-0.17	0.12	-6.82	-3.45	.001
Interaction SRIS*Att*SN	-0.01	-0.01	-0.002	0.001	-7.72	-3.49	.001
Interaction Att*SN*PBC	0.01	0.01	0.02	0.003	10.51	3.98	< .001
Bachelor's degree	-15.97	-22.70	-9.25	3.19	-0.48	-5.01	< .001
Master's degree	-11.93	-18.55	-5.32	3.09	-0.40	-3.86	.002
Professional doctorate degree	-7.22	-14.90	0.47	3.73	-0.15	-1.94	.06
Long-term care	-5.84	-10.42	-1.26	2.34	-0.12	-2.50	.01
1-5 years	-5.47	-10.61	-0.34	2.58	-0.13	-2.12	.04
6-10 years	3.68	-2.17	9.53	2.97	0.07	1.24	.22
21-25 years	-4.72	-10.06	0.63	2.70	-0.09	-1.75	.08

Note. n = 288. SRIS = Self-Reflection and Insight Scale; Att = Evidence-Based Practice Inventory- Attitude; SN = Evidence-Based Practice Inventory- Subjective Norm; PBC = Evidence-Based Practice Inventory- Perceived Behavioral Control; EIS= Evidence-Based Practice Implementation Scale.

The results from this analysis suggest that many of the variables included in the model predicted the level of the criterion variable, evidence-based practice implementation in OTPs. The model explained 45% of the variability in EIS. This means that while these predictors are helpful at understanding EBP, there are other factors not measured in this study and, therefore, not included in the model that impact EBP. Notable predictors of EIS included OTPs' SRIS score, EBPIPBC score, degree level, workplace, and experience level. SRIS was a negative predictor of EIS. For every 1-point increase in the SRIS score, the EIS score decreased by a statistically significant 3.70 points, suggesting a negative relationship between self-reflection and EBP. However, for every one-point increase in the EBPIPBC score, the EIS score increased by a statistically significant 5.90 points, suggesting a positive relationship between perceived behavioral control and EBP.

All the demographic characteristics identified by the model as statistically significant predictors had a negative relationship with EIS. Possession of a bachelor's degree was associated with a 15.97-point decrease in EIS score, and a master's degree was associated with an 11.93-point decrease in EIS score. Notably, post-professional doctorate was associated with a 7.22-point decrease in EIS score, but this relationship was not statistically significant (p = .06). Working in long-term care was associated with a 5.84-point decrease in EIS score. Finally, reporting being in practice for one to five years was associated with a 5.47-point decrease in EIS score.

Research Question 3. To what extent does the interaction between self-reflective practice, attitudes, SN, and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. This interaction was not identified by the model as a predictor that optimized the adjusted R^2, parsimony, and alignment with the theoretical understanding of EBP. Therefore, it was not included in the final model.

Research Question 3.a. To what extent does the interaction between self-reflective practice and attitudes predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. The interaction between SRIS and EBPIA scores contributed significantly to the model ($B = 0.09$, $t = 3.25$, $p = .001$) (see Table 13). The SRIS and EBPIA interaction is positive, but the main effect of SRIS is negative. In this case, even though self-reflection typically decreases EBP, the interaction indicates that as attitudes about EBP become more favorable, the negative impact of self-reflection on EBP decreases. The reverse is also true: when attitudes about EBP are less favorable, the negative impact of self-reflection on EBP increases.

Research Question 3.b. To what extent does the interaction between self-reflective practice and SN predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. The interaction between SRIS and EBPISN scores contributed significantly to the model ($B = 0.21$, $t = 3.59$, $p < .001$) (see Table 13). The SRIS and EBPISN interaction is positive, but the main

effects of SRIS and EBPISN are negative. Even though self-reflection has a negative effect on EBP, at higher levels of SN the negative effect is less. Conversely, at lower levels of SN, the negative effect of self-reflection on EBP is more pronounced.

Research Question 3.c. To what extent does the interaction between self-reflective practice and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. This interaction was not identified by the model as a predictor that optimized the adjusted R^2, parsimony, and alignment with the theoretical understanding of EBP. Therefore, it was not included in the final model.

Research Question 3.d. To what extent does the interaction between attitudes and SN predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between precursor factors were statistically significant predictors of EBP behavior. The interaction between EBPIA and EBPISN scores contributed significantly to the model (B = -0.06, t = -2.85, p = .004) (see Table 13). Because the main effect of SN on EBP is negative, this interaction means that the negative impact of SN on EBP is lessened at higher levels of positive attitude toward EBP, but it is intensified in participants who score lower on the attitudes measure.

Research Question 3.e. To what extent does the interaction between attitudes and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between precursor factors were statistically significant predictors of EBP behavior. The interaction between EBPIA and EBPIPBC scores contributed significantly to the model (B = -0.17, t = -4.45, p = .002) (see

Table 13). This interaction means that the impact of PBC on EBP is lessened at participants who report more positive attitudes about EBP, but is more impactful in those with lower scores on the attitude scale.

Research Question 3.f. To what extent does the interaction between SN and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between precursor factors were statistically significant predictors of EBP behavior. The interaction between EBPISN and EBPIPBC scores contributed significantly to the model (B = -0.40, t = -6.82, p = .001) (see Table 13). This interaction means that the impact of PBC on EBP is lessened at higher levels of SN but intensified at lower levels of SN about EBP.

Research Question 3.g. To what extent does the interaction between self-reflective practice, attitudes, and SN predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. The interaction between SRIS, EBPIA, and EBPISN scores contributed significantly to the model (B = -0.01, t = -7.72, p = .001) (see Table 13). Though this interaction can be interpreted in multiple ways, the most relevant insight it provides is into the impact of attitudes on the interaction between SRP and SN. The positive interaction between SRP and SN indicates that high levels of SN mitigate the negative impact that SRP has on EBP. This means that the effect of SRP on EBP is less negative at higher levels of SN. The three-way interaction indicates that the strength of this relationship changes at different levels of attitude. In cases of highly positive attitudes, the effect of SRP is more independent of the value of SN. The reverse is true at low levels of attitude: the effect of SRP is more strongly linked to the value of SN.

Research Question 3.h. To what extent does the interaction between self-reflective practice, attitudes, and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. This interaction was not identified by the model as a predictor that optimized the adjusted R^2, parsimony, and alignment with the theoretical understanding of EBP. Therefore, it was not included in the final model.

Research Question 3.i. To what extent does the interaction between self-reflective practice, SN, and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between self-reflection and precursor factors were statistically significant predictors of EBP behavior. This interaction was not identified by the model as a predictor that optimized the adjusted R^2, parsimony, and alignment with the theoretical understanding of EBP. Therefore, it was not included in the final model.

Research Question 3.j. To what extent does the interaction between attitudes, SN, and PBC predict OTPs' evidence-based practice?

Linear multiple regression was performed to determine if interactions between the precursor factors were statistically significant predictors of EBP behavior. The interaction between EBPIA, EBPISN, and EBPIPBC scores contributed significantly to the model ($B = 0.01$, $t = 10.51$, $p < .001$) (see Table 13). Though this interaction can be interpreted in multiple ways, the most relevant insight it provides is into the impact of attitudes on the interaction between PBC and SN. The negative interaction between PBC and SN indicates that high levels of SN decrease the positive impact that PBC has on EBP. This means that the effect of PBC on EBP is

less positive at higher levels of SN. The three-way interaction indicates that the relationship between SN and PBC changes at different levels of attitude. In cases of highly positive attitudes about EBP, the effect of PBC is more closely linked to the value of SN. The reverse is true at low levels of attitude: in this case, the effect of PBC is more independent of the value of SN.

Chapter Summary

This chapter presents the results of the analysis that was conducted on the data from OTPs. Surveys were used to collect information on OTPs' EBP, demographic factors, and cognitive factors related to EBP. Statistical analyses revealed trends in the relationships between the variables.

Descriptive analysis of the demographic factors detailed the state of EBP in OTPs of differing degree levels, years of experience, and practicing in different professional contexts. Regression analysis revealed that SRP, PBC, degree level, area of practice, and years of experience all were significant predictors of EBP. Furthermore, several interaction terms were included in the model as significant predictors. This indicates that the impact of SRP and PBC were moderated by the other cognitive factors included in the model. In some cases, three-way interactions indicated that these relationships were further influenced by a third variable.

Chapter V

Conclusions

The purpose of this study is to clarify the factors that contribute to occupational therapy practitioners' (OTPs') evidence-based practice (EBP). The knowledge gained from this study will fill a gap in the current understanding of EBP, which neglects internal cognitive factors in favor of measuring external institutional factors. This study explicitly addresses the cognitive factors that, according to the Theory of Planned Behavior (TPB), are considered crucial in forming the intention to engage in a behavior: attitudes, perceived behavioral control (PBC), and subjective norms (SN) (Ajzen, 1991). I also investigated the impact of self-reflection on EBP, which provides a more robust picture of the effect of implicit cognitive factors on EBP. This understanding can be used to inform interventions to promote EBP by comprehensively addressing the barriers and taking advantage of any facilitators.

Discussion

The results of this study provide insight into the state of EBP in OTPs, demographic predictors of EBP, and cognitive predictors of EBP. This section situates the results in the context of the previously published literature regarding EBP, self-reflective practice (SRP), and the TPB. While the results of this study provide further support for the findings of previous researchers, they offer essential nuance in the interpretation of these results that was not previously known. The main contribution of these results is in providing further understanding of the relationship between precursor factors, SRP, and EBP.

The State of EBP in OTPs

Overall, I found that participants reported relatively low engagement in EBP, scoring, on average, 19.80 (*SD* = 14.92) out of a possible 72 points on the Evidence Implementation Scale (EIS). This is similar to the results found by Kreuger et al. (2020), whose participants scored an average of 14.8 points (*SD* not shared) on the same measure. This finding aligns with the results of Y. Wang et al. (2019), who, through a survey, found that American OTPs report engaging in EBP a little less than some of the time. This trend is present globally, with Australian OTPs reporting the use of best practices less than 30% of the time (Nott et al., 2020) and 81.5% of Swedish OTPs reporting reading one or fewer research articles per month (Lindström & Bernhardsson, 2018).

However, I found that attitudes about EBP were relatively positive, with participants scoring, on average, 39.17 points (*SD* = 7.75) out of a possible 48 points on the Evidence-Based Practice Inventory- Attitudes (EBPIA). This supports the results found previously, that OTPs have overwhelmingly positive attitudes about EBP, even in cases of low implementation (Lindström & Bernhardsson, 2018; Y. Wang et al., 2019). I also found that SN about EBP were moderate, with participants scoring an average of 21.02 points (*SD* = 5.84) out of a possible 30 points on the Evidence-Based Practice Inventory- Subjective Norms (EBPISN). Though no studies have isolated OTPs' SN about EBP, one study found that 20% of participants in a mixed sample of allied health professionals, which included OTPs, reported that their profession did not encourage EBP. Though these researchers did not describe whether there were patterns in this result based on profession, it suggests that there may be a subset of OTPs who do not feel that others in the profession value EBP, while a larger percentage feel that other OTPs support their

use of EBP (Engels et al., 2020). However, because the analyses were pooled across multiple professions, it is impossible to understand the relationship between this finding and my results.

I also found that the OTPs in my sample endorsed relatively high PBC regarding EBP, scoring an average of 29.60 points (*SD* = 5.76) out of a possible 36 points on the Evidence-Based Practice Inventory- Perceived Behavioral Control (EBPIPBC). Research into OTPs' perceptions of the barriers to EBP overwhelmingly finds that OTPs identify control factors, such as difficulty accessing literature and lack of time to engage in the EBP process, as the main barriers to EBP (Cardin & Hudson, 2018; Engels et al., 2020; Provvidenza et al., 2020; Y. Wang et al., 2019; Wenke et al., 2022). Although the TPB literature suggests a relationship between control factors and PBC, no work has yet been done on this relationship in OTPs' EBP behavior. Since previous work has not investigated the PBC construct as a whole in the context of EBP, it is challenging to definitively determine how my result aligns with this literature.

Demographic Predictors of EBP

The regression model analysis found that SRP, PBC, degree type, years in practice, practice area, and several interactions were significant predictors of EBP behavior. The significant interactions were the interaction between SRP and attitudes; the interaction between SRP and SN; the interaction between attitudes and SN; the interaction between attitudes and PBC; the interaction between SN and PBC; the interaction between SRP, attitudes, and SN; and the interaction between attitudes, SN, and PBC.

The significant predictors among the degree types were a bachelor's degree and a master's degree. Achievement of a professional doctorate was included in the model as a non-significant predictor. All degree types included in the model were negative predictors, indicating that achievement of these particular degrees was associated with lower use of EBP. This result is

similar to what was found by Krueger et al. (2020): that achievement of any type of doctorate was associated with higher use of EBP. Importantly, my study did not find that doctorate degrees were associated with higher EBP use, only that master's and bachelor's degrees were associated with lower EBP use. Furthermore, the entry-level post-professional doctorate was associated with a non-significant trend toward lower EBP use, which is a departure from what Krueger et al. (2020) found, though they did not distinguish between types of doctorate degrees, so it is difficult to draw a direct comparison. On the other hand, Klaic et al. (2018) found that achievement of a PhD or master's degree was associated with an increase in EBP behavior. Notably, this sample did not include participants with a clinical doctorate of any kind.

Practicing for 1-5 years was the only experience level that was a significant predictor in the model, though 6-10 years and 21-25 years were included in the model as non-significant predictors. Practicing for 1-5 years was associated with decreased engagement in EBP. This result somewhat supports Klaic et al.'s (2018) findings, who demonstrated that EBP declines with time. The results of this study did not show the same consistent decline over time that was found previously, with all levels of experience except for 1-5 years identified as non-significant predictors or not eligible for inclusion in the model at all.

Practicing in long-term care was also included in the model as a significant predictor of EBP. It was negatively associated with EBP. This result adds more insight into the literature on the impact of practice area on EBP. Previously, a group of OTPs working in stroke rehab identified the nature of their area of practice as a support to engagement in EBP (Thomas et al., 2023). My work expands those conclusions by taking a diverse sample of multiple practice areas and identifying one that is not a support to EBP.

Cognitive Predictors of EBP

PBC was included in the model as a significant, positive predictor of EBP. This means that as PBC increased, so did EBP. In contrast, SRP was included in the model as a significant, negative predictor of EBP behavior. This means that as self-reflection behavior increased, EBP behavior decreased. While this is in contrast to other studies that find a positive relationship between EBP and SRP (Krueger et al., 2020; Provident et al., 2015), the nature of regression analysis explains this discrepancy. Previous work has investigated the relationship between SRP and EBP in isolation, without accounting for other cognitive and demographic factors (Krueger et al., 2020; Lowe et al., 2007; Provident et al., 2015). This work utilizes a regression model to understand the impact of SRP when cognitive factors—attitudes, SN, and PBC—and demographic factors—degree level, practice area, and experience—are included in the model. When the impact of these aforementioned factors is removed, higher levels of SRP result in lower levels of EBP and vice versa. Notably, the correlation analysis revealed that SRP and EBP were positively, but not significantly, correlated. Unlike the regression analysis, the correlation analysis does not account for the impact of other factors, suggesting that the relationship between EBP and SRP varies depending on the way in which the model is constructed.

The finding that SRP is negatively related to EBP *when the impact of PBC and demographics is removed* does not necessarily conflict with previous findings. Instead, it provides more context. This is particularly relevant when discussing the cognitive precursors to intention formation—attitudes, SN, and PBC. These precursor factors are based on an individual's accessible behavioral, normative, and control beliefs, respectively (Ajzen, 2020). Research suggests that self-reflection is a possible mechanism through which these beliefs become accessible (Phipps et al., 2022; Shuck et al., 2024). Therefore, in the context of behavior

change, the content of self-reflection is comprised of behavioral beliefs, normative beliefs, control beliefs, and cognitions not related to behavior change.

According to this theory, then, the construct of SRP included in the model can be understood not as a monolith, but as an amalgamation of behavioral beliefs, normative beliefs, control beliefs, and other cognitions not related to behavior change. When EBPIPBC is included in the model as a predictor, the model controls for the control beliefs part of SRP. This means that the construct of SRP included in the model is limited to reflections unrelated to behavioral control. The negative *B* value in the model is related to reflections on behavioral beliefs, normative beliefs, and cognitions not related to behavior change. This means that, all things being equal, OTPs who spend a lot of time reflecting on the possible outcomes of using EBP, the EBP beliefs and behaviors of others around them, and reflecting on things not related to EBP, are *less likely to engage in EBP*. However, because PBC arises out of reflections on control beliefs, OTPs who spend a lot of time thinking about the barriers and supports that impact engagement in EBP and use these thoughts to create positive feelings of control over their EBP behavior are *more likely to engage in EBP*. Other models that do not tease out the impact of different types of cognitions simply find a main effect of SRP, with no understanding of which specific reflections are driving this effect.

One potential explanation for the results I found in the regression is that OTPs who spend time thinking about practical barriers and facilitators to EBP come up with strategies that enhance the effect of the facilitators and mitigate the effect of the barriers. This leads to increased perceived behavioral control, which leads to increased EBP behaviors. OTPs who spend a lot of time reflecting on other aspects of their practice do not come up with the same

practical strategies to facilitate EBP use, so this aspect of self-reflection is counterproductive to EBP.

The wider EBP literature supports this conclusion. OTPs overwhelmingly have positive attitudes about EBP, but low implementation (Cardin & Hudson, 2018; Y. Wang et al., 2019). I found that attitude is only a significant predictor of EBP when combined with other factors as an interaction, but not as a main effect, aligning my findings with what has previously been demonstrated in OTPs. Previous research has repeatedly identified that the main barriers to EBP are related to the control that OTPs have over their ability to engage in EBP behaviors, such as time for EBP activities (Cardin & Hudson, 2018; Provvidenza et al., 2020; Y. Wang et al., 2019; Wenke et al., 2022), and access to journal articles (Y. Wang et al., 2019). These researchers used self-report measures to identify these barriers, so they were actually measuring OTPs' *perceived* behavioral control, not their *actual* control over their EBP behavior. This supports my finding that PBC is a strong predictor of increased EBP use.

In the TPB, PBC is unique because it is often used as a substitute for actual control (Ajzen, 2020). However, in some situations, it is not a perfect substitute because an individual's perception of her control over her actions varies based on her cognitive assessment of her supports and barriers, and she may not always be accurate in this assessment. Therefore, it is not clear whether this result suggests that the EBP problem is a cognitive problem or a practical problem. It is possible that two OTPs working in the same facility, with the same degree level and amount of experience, would report different levels of PBC because their cognitive assessment of the control they have over their EBP behavior varies. It is also possible that this difference in PBC varies because one OTP has found creative ways to mitigate her lack of time and access to resources, such as by listening to evidence-based podcasts on her commute to

work. Given the same circumstances, an individual's PBC may vary because of her ability to problem-solve creatively. In either case, EBP has a cognitive solution: either altering OTPs' cognitive assessment of PBC to increase their EBP behavior or supporting creative problem-solving and reframing of time and resources to increase EBP behavior. On the other hand, if it is true that all OTPs in the same setting, with the same degree and years of experience, have the same assessment of PBC, this makes PBC an accurate representation of actual control. In this case, EBP does not have a cognitive solution. The only way to improve EBP is to induce the entities that employ OTPs (schools, hospitals, clinics, and other providers of care) to decrease the barriers to and increase the supports for EBP. Further research is required to understand better the factors that impact OTPs' PBC.

Limitations

Though there is value to understanding OTPs' perceptions of their own EBP, the main limitation of this work is that it did not include objective measurements, either of OTPs' EBP behaviors, SRP, or of their actual control over these behaviors. This makes it difficult to understand if OTPs are reporting a perception of EBP and SRP or actual engagement in the behaviors being studied. Another limitation is that this work only included participants from the state of Florida. Therefore, the results of this study cannot be generalized to OTPs from other locations. Finally, the SRP measure used was related to clinical practice in general, and not EBP specifically. Though participants were primed to think about their EBP before starting the survey, this does not guarantee that this work provides insights into the impact of EBP-specific reflection.

Implications for Theory

This work had theoretical basis in the Theory of Planned Behavior (Ajzen, 1985) and the dual process model (Kahneman, 2013). The results suggest several implications related to these theoretical frameworks. This section discusses the relevance of these findings to the TPB and the dual process model.

Implications for the Theory of Planned Behavior

The results from this study suggest that PBC is the biggest predictor of EBP in OTPs. This finding is contextualized by previous studies, which find that the key precursor factors in predicting behavior vary based on the population of OTPs, the target behavior, or other factors not yet understood (Doyle & Bennett, 2014; Glegg et al., 2017; Groth, 2011). This finding, that PBC impacts EBP, is in line with some of the literature suggesting that PBC plays a role in EBP behaviors related to stroke rehab and virtual reality use (Doyle & Bennett, 2014; Glegg et al., 2017). However, other work looking at EBP behaviors related to carpal tunnel treatment found that PBC did not impact EBP (Groth, 2011). My work, which spans practitioners working in a wide range of settings, suggests that, overall, PBC impacts EBP behavior in OTPs, but does not rule out the possibility that specific EBP behaviors and practice settings may elicit different behavior change cascades.

Implications for Dual Process Theory

Because self-reflection makes the implicit explicit (Ghaye & Lillyman, 2014), the finding that SRP is a major predictor of EBP supports the conclusion that individuals with different levels of awareness of their implicit cognitive processes behave differently. This supports the claim that both implicit and explicit cognition determine behavior (Kahneman, 2013). Furthermore, the results of this study suggest that there is a relationship between SRP, behavior,

and the precursor factors to behavior. The interactions between SRP and attitudes; SRP and SN; and SRP, attitudes, and SN indicate that these two precursor factors influence the effect that SRP has on EBP. Due to the nature of the methodology of this study, the directionality of this relationship is not known. However, one possible explanation for this relationship is provided by the theory that self-reflection may be the mechanism through which experience changes which behavioral and normative beliefs are accessible, thus informing future behavior (Ajzen, 2020; Chung et al., 2016).

Implications for Occupational Therapy Practice

The results of this study suggest several take-home messages for the occupational therapy profession.

When training new OTPs in entry-level programs, it may be helpful to include skill-building that addresses cognitive barriers to EBP as well as academic skills. This has been recommended by Bannigan and Moores (2009) in relation to self-reflection, but the results of this study suggest that focusing this cognitive training on PBC may be the most effective strategy.

Practicing clinicians would also benefit from EBP-focused training that emphasizes understanding PBC, mitigating barriers, and increasing supports. This factor was identified as the largest cognitive predictor in the model. The finding that increased PBC is related to increased EBP use suggests an opportunity to support OTPs in their use of EBP by supporting their development of strategies and techniques to improve their PBC over EBP.

When considering training opportunities for practicing clinicians, the results of this study suggest that it would be most impactful to focus on clinicians who do not hold an advanced

doctoral degree. Low EBP behavior was related to having a bachelor's or a master's degree. This population would benefit the most from interventions and training that address EBP.

The results of this study suggest several strategies that OTPs can adopt to promote successful EBP use. OTPs should advocate for supports related to PBC, such as increased autonomy in how time at work is spent and a seat at the table in discussions on how departmental resources are used. For example, advocating for increased discretionary time at work to complete training, non-billable patient care, or other administrative tasks may support OTPs' PBC. Departments that incorporate the perspectives of practicing OTPs, rather than just those of managing OTPs, when allocating departmental resources may experience increased engagement in EBP.

The results of this study suggest that interventions aimed at improving OTPs' attitudes or SN around EBP may not help improve OTPs' EBP. Instead, resources would be better spent on supporting OTPs' autonomy and control over their perceived barriers and supports to EBP. Furthermore, self-reflective interventions may be helpful, but only when the focus is on PBC. When reflection focuses on other topics, it may actually be counterproductive.

Recommendations for Future Research

As previously discussed, this work found slightly different patterns of EBP use, particularly in practitioners with entry-level doctorates and at increased years of experience beyond five years. The research to which I compared my work was almost all conducted before the COVID-19 pandemic, providing a possible explanation for the difference in results. This is particularly relevant in light of the literature that suggests that EBP is related to burnout (Bar-Nizan et al., 2024), and burnout patterns have significantly changed since the pandemic (Murthy,

2022). More research is needed to understand if the factors impacting EBP have changed since the pandemic irrevocably altered the healthcare workforce.

Although my work provides some insight into the role of PBC on EBP, further research is necessary to better describe the relationship between actual control, PBC, and EBP. Furthermore, objective measures of SRP, actual control, and EBP would provide actionable insights into what solutions are needed for the EBP problem.

Finally, interventional studies aimed at applying these insights to increase EBP are greatly needed. Low-cost, feasible interventions aimed at increasing OTPs' EBP behaviors are imperative to improve patient outcomes and OTP job satisfaction. This work, which addresses the cognitive barriers to EBP, provides one such avenue to pursue to improve EBP. These results suggest that SRP-based interventions that focus on enhancing feelings of control over EBP may positively impact EBP in OTPs.

Concluding Remarks

This study found similar patterns of EBP use in OTPs as have been previously found in the literature and contributes to an understanding of the cognitive factors that may drive the decision to engage or not engage in EBP. Other work has treated SRP as a monolith, but a nuanced understanding of the importance of reflecting on PBC emerged in these results. This suggests several avenues for future research, particularly the need for a better understanding of the directionality of the relationship between SRP, PBC, and EBP. There is also a need to research the impact that interventions based on this insight may have on EBP. These results are important to consider when planning training for future and practicing OTPs and determining departmental priorities for resource allocation. Appropriate application of these insights may improve the health and well-being of the population at large by increasing OTPs' use of EBP.

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Appendix A:

IRB Approval Form

Institutional Review Board (IRB)
For the Protection of Human Research Participants

Protocol Exemption Report

Protocol Number: 04602-2025 **Responsible Researcher(s):** Marissa Mirecki

Supervising Faculty: Dr. Christopher Keith Waugh

Project Title: *The impact of cognitive factors on evidence-based practice: An exploration in occupational therapy practitioners.*

Institutional Review Board Determination:

This research protocol is **exempt** from Institutional Review Board (IRB) oversight under 45 CFR 46.101(b) of the federal regulations, **category 2**. If the nature of the research changes such that exemption criteria no longer apply, please consult the IRB Administrator (tmwright@valdosta.edu) before continuing your research study.

Additional Information & Guidance:

- *Upon completion of the research study all data (e.g. data, pseudonym/email lists, data set, etc.) must be securely maintained (e.g. locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a minimum of 3 years. At the end of the required time, collected data must be permanently destroyed.*

☒ ***Proposed modifications must be submitted directly to the IRB Administrator at tmwright@valdosta.edu for review and approval. Implementing modifications without written approval from the IRB is strictly prohibited.***

Elizabeth Ann Olphie *06.06.2025*

Elizabeth Ann Olphie, IRB Administrator

Please direct questions to tmwright@valdosta.ed or 229-253-2947.

Revised: 12.2024

Appendix B:

Consent Form

Consent Form

Subject: Have 15 Minutes? Help Us Understand How OTPs Use Evidence
Hi [First Name],
I'm reaching out to invite you to participate in a research study designed specifically for occupational therapy practitioners like you.
I'm Marissa Mirecki, a doctoral student at Valdosta State University and occupational therapist, and I'm conducting a study about OTPs' clinical decision-making.
The goal of this study is to better understand the cognitive factors, like self-efficacy and reflective thinking, that influence how OTPs engage with evidence-based practice. Your perspective is crucial to identifying what supports or challenges OTPs face in applying it effectively.
The survey takes approximately 15 minutes to complete, is completely anonymous, and participation is voluntary. There are no foreseeable risks and no direct benefits to you, but your responses can contribute to a deeper understanding of how to better support occupational therapists in Florida.
If you're an OTP in Florida, I would truly appreciate your participation.

👉 Click here to take the survey

Questions regarding the purpose or procedures of the research should be directed to Marissa Mirecki at mrmirecki@valdosta.edu. This study (IRB-04602-2025) has been approved by the Valdosta State University Institutional Review Board (IRB) for the Protection of Human Research Participants. The IRB, a university committee established by federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-253-2947 or irb@valdosta.edu.
Thank you for considering this opportunity to help advance our profession!
Warm regards,
Marissa Mirecki
Valdosta State University

Appendix C:

Demographic Survey

Demographic Survey

What is your *primary* practice area?

☐Academia and research

☐Home and community

☐Hospital (other than mental health)

☐Long-term care

☐Mental and behavioral health

☐Schools, early intervention, and community education

☐Outpatient clinic

☐Other

How much experience do you have working as an occupational therapy practitioner?

☐Less than 1 year

☐1-5 years

☐6-10 years

☐11-15 years

☐16-20 years

☐21-25 years

☐26-30 years

☐31 or greater

Identify your highest level of education.

☐Certificate

☐Associate degree

☐Baccalaureate degree

☐Master's degree

☐Post-professional doctorate (e.g., PP-OTD)

☐Professional doctorate (e.g., OTD)

☐Research doctorate (e.g., PhD, ScD)

☐Other

Appendix D:

The EBP Implementation Scale

The EBP Implementation Scale

Melnyk et al. (2008). Below are 18 questions about evidence-based practice (EBP Some healthcare providers do some of these things more often than other healthcare providers. There is no certain frequency in which you should be performing these tasks. Please answer each question by circling the number that best describes **how often each item has applied to you in the past 8 weeks.**

In the **past 8 weeks,** I have:

	0 times	<3 times	5 times	>5<8 times	>8 times
1. Used evidence to change my clinical practice.	0	1	2	3	4
2. Critically appraised evidence from a research study.	0	1	2	3	4
3. Generated a PICO question about my clinical practice.	0	1	2	3	4
4. Informally discussed evidence from a research study with a colleague.	0	1	2	3	4
5. Collected data on a patient problem.	0	1	2	3	4
6. Shared evidence from a study/ies in the form of a report or presentation to > 2 colleagues.	0	1	2	3	4
7. Evaluated the outcomes of a practice change.	0	1	2	3	4
8. Shared an EBP guideline with a colleague.	0	1	2	3	4
9. Shared evidence from a research study with a patient/family member.	0	1	2	3	4
10. Shared evidence from a research study with a multidisciplinary team member.	0	1	2	3	4
11. Read and critically appraised a clinical research study.	0	1	2	3	4
12. Accessed the Cochrane database of systematic reviews.	0	1	2	3	4
13. Accessed the National Guidelines Clearinghouse.	0	1	2	3	4
14. Used an EBP guideline or systematic review to change clinical practice where I work.	0	1	2	3	4
15. Evaluated a care initiative by collecting patient outcome data.	0	1	2	3	4
16. Shared the outcome data collected with colleagues.	0	1	2	3	4
17. Changed practice based on patient outcome data.	0	1	2	3	4
18. Promoted the use of EBP to my colleagues.	0	1	2	3	4

Appendix E:

The Self-Reflection Subscale of the Self-Reflection and Insight Scale

The Self-Reflection Subscale of the Self-Reflection and Insight Scale

Grant et al. (2002).

Engagement in self-reflection						
	strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
1. I don't often think about my thoughts (R)	1	2	3	4	5	6
2. I rarely spend time in self-reflection (R)	1	2	3	4	5	6
3. I frequently examine my feelings	1	2	3	4	5	6
4. I don't really think about why I behave in the way that I do (R)	1	2	3	4	5	6
5. I frequently take time to reflect on my thoughts	1	2	3	4	5	6
6. I often think about the way I feel about things	1	2	3	4	5	6
Need for self-reflection						
1. I am not really interested in analyzing my behavior (R)	1	2	3	4	5	6
2. It is important for me to evaluate the things that I do	1	2	3	4	5	6
3. I am very interested in examining what I think about	1	2	3	4	5	6
4. It is important to me to try to understand what my feelings mean	1	2	3	4	5	6
5. I have a definite need to understand the way that my mind works	1	2	3	4	5	6
6. It is important to me to be able to understand how my thoughts arise	1	2	3	4	5	6

Note: (R) signifies that an item is reverse coded.

Appendix F:

The Evidence-Based Practice Inventory

The Evidence-Based Practice Inventory

Adapted from Kaper et al. (2015).

Introduction

As a care provider, you make many clinical decisions for your patients each day. This survey was designed to clarify the process of how care providers make their decisions in daily practice. Answers to the questions below should reflect the way you typically make your decisions. There are no right or wrong answers, we only ask you to provide your personal point of view.

Thank you for your participation. Your responses will be treated anonymously and confidentially.

Before proceeding to the survey, please carefully read our definitions of "clinical decision" and "evidence based practice". These terms will be used in the survey.

Definitions

CLINICAL DECISION

- The choice made on what action to take in patient care after evaluation of information on alternative options.

EVIDENCE BASED PRACTICE (EBP)

- A problem solving approach used for making clinical decisions that integrates the current best research evidence with clinical experience and individual patients' characteristics, preferences and values.

Now, please read each question carefully and select the number of your choice

Attitude

1. I feel that EBP is *useless*①②③④⑤⑥*useful* to improve my patients' outcomes.
2. I feel that EBP is an *unimportant*①②③④⑤⑥*important* feature of high-quality patient care.
3. I feel that EBP *worsens*①②③④⑤⑥*improves* the quality of my clinical decisions.
4. I feel that EBP *disregards*①②③④⑤⑥*respects* my clinical experience.
5. I feel that EBP *disregards*①②③④⑤⑥*respects* individual differences between my patients.
6. EBP makes me feel *constrained*①②③④⑤⑥*autonomous* in my clinical decisions.
7. EBP *hinders*①②③④⑤⑥*helps* me in making better clinical decisions.
8. I feel that clinical guidelines in my own discipline *hinder*①②③④⑤⑥*help* me in making decisions.

Subjective norm

9. My colleagues *discourage*①②③④⑤⑥*encourage* me to apply EBP principles in my clinical decisions.
10. In my department, we pay *no*①②③④⑤⑥*a lot of* attention to applying EBP principles in our clinical decisions.
11. Managers in my department *hinder*①②③④⑤⑥*support* me to apply EBP principles in my clinical decisions.
12. My colleagues and I *rarely*①②③④⑤⑥*frequently* discuss and challenge how we make our clinical decisions.
13. My colleagues and I *rarely*①②③④⑤⑥*frequently* discuss research evidence from literature.

Perceived behavioral control

14. I feel that I am *incapable*①②③④⑤⑥*capable* of applying EBP principles in my clinical decisions.
15. I feel that I am *incapable*①②③④⑤⑥*capable* of translating my information needs into relevant and feasible clinical questions.
16. I feel that I am *incapable*①②③④⑤⑥*capable* of searching for research evidence in literature.
17. I feel that I am *incapable*①②③④⑤⑥*capable* of critically appraising research evidence from literature.
18. I feel that I am *incapable*①②③④⑤⑥*capable* of translating research evidence to the care of my individual patients.
19. I feel *incapable*①②③④⑤⑥*capable* of regularly keeping up with latest research evidence from literature.

Decision making

20. I give *low*①②③④⑤⑥*high* priority to a thorough understanding of the background of the answers to my clinical questions.
21. I *dislike*①②③④⑤⑥*like* using numbers, tables, and other quantitative information for supporting my clinical decisions.
22. When making clinical decisions, I prefer to use *my intuition and experience*①②③④⑤⑥*facts and arguments*.

Intention and behavior

23. I *rarely*①②③④⑤⑥*frequently* use research evidence to support my clinical decisions.

24. I prefer to use my own *experience*①②③④⑤⑥*research evidence* for making my clinical decisions.
25. I tend to *ask colleagues*①②③④⑤⑥*search the literature* to find answers to my clinical questions.
26. I *rarely*①②③④⑤⑥*frequently* seek out available research evidence to answer my daily clinical questions.

Appendix G:

Permissions: The EBP Implementation Scale

Outlook

RE: Request to use the EBP Beliefs and Implementations Scales in a doctoral dissertation

From Melnyk, Bernadette <melnyk.15@osu.edu>
Date Wed 4/2/2025 9:04 AM
To Marissa R Mirecki <mrmirecki@valdosta.edu>

2 attachments (28 KB)
EBP Beliefs Scale.pdf; EBP Implementation Scale.pdf;

Delivered From External Sender

Hi Marissa,
I'm attaching both scales in case you decide to use the beliefs scale too. I'd encourage you to use it as it so strongly predicts implementation.
Best wishes with your project!

Warm and well regards,
Bern
Bernadette Mazurek Melnyk, PhD, APRN-CNP, FAANP, FNAP, FAAN
Professor Emeritus
Former VP for Health Promotion and Chief Wellness Officer (2011-2025)
The Ohio State University

Former Dean, College of Nursing (2011-2023)
Founder & Immediate Past President, the National Consortium for Building Healthy Academic Communities (BHAC); See www.healthyacademics.org
Chair, the National Forum for Heart Disease and Stroke Prevention
Editor, *Worldviews on Evidence-based Nursing*
melnyk.15@osu.edu
614-318-9966
X@bernmelnyk

From: Marissa R Mirecki <mrmirecki@valdosta.edu>
Sent: Tuesday, April 1, 2025 10:15 AM
To: Melnyk, Bernadette <melnyk.15@osu.edu>
Subject: Re: Request to use the EBP Beliefs and Implementations Scales in a doctoral dissertation

From: Marissa R Mirecki <mrmirecki@valdosta.edu>
Sent: Tuesday, April 1, 2025 10:15 AM
To: Melnyk, Bernadette <melnyk.15@osu.edu>
Subject: Re: Request to use the EBP Beliefs and Implementations Scales in a doctoral dissertation

Hi Dr. Melnyk,

Thank you so much for your support of my project. I have attached the form with all of the relevant information. I will send the validity and reliability information to you by the end of the summer, provided all goes well with data collection.

Warm regards,

Marissa

From: Melnyk, Bernadette <melnyk.15@osu.edu>
Sent: Monday, March 10, 2025 8:53 AM
To: Marissa R Mirecki <mrmirecki@valdosta.edu>
Subject: RE: Request to use the EBP Beliefs and Implementations Scales in a doctoral dissertation

Hi Marissa—it is good to hear from you. I don't currently charge for use of the scales but I do require you to complete the attached form.
Once you do that, I will send the scales to you. Best wishes!

Warm and well regards,
Bern
Bernadette Mazurek Melnyk, PhD, APRN-CNP, FAANP, FNAP, FAAN
Professor Emeritus
Former VP for Health Promotion and Chief Wellness Officer (2011-2025)
The Ohio State University

Former Dean, College of Nursing (2011-2023)
Founder & Immediate Past President, the National Consortium for Building Healthy Academic Communities (BHAC); See www.healthyacademics.org
Chair, the National Forum for Heart Disease and Stroke Prevention
Editor, *Worldviews on Evidence-based Nursing*
melnyk.15@osu.edu
614-318-9966
X@bernmelnyk

From: Marissa R Mirecki <mrmirecki@valdosta.edu>
Sent: Sunday, March 9, 2025 4:02 PM
To: Melnyk, Bernadette <melnyk.15@osu.edu>
Subject: Request to use the EBP Beliefs and Implementations Scales in a doctoral dissertation

Dear Dr. Melnyk,

I hope this email finds you well. My name is Marissa Mirecki, and I am an EdD candidate at Valdosta State University. I am currently planning the research for my dissertation, which is focused on self-reflective practice and evidence-based practice in occupational therapy practitioners.

When conducting my literature review, I came across your article, "The evidence-based practice beliefs and implementation scales: Psychometric properties of two new instruments," published in Worldviews on Evidence-Based Nursing in 2008. The EBP Beliefs and Implementations Scales that you and your co-authors developed for measuring practitioners' evidence-based practice align with the focus of my dissertation, and I would like to request your permission to use them in my study.

Specifically, I plan to distribute the survey to occupational therapy practitioners to understand their EBP behaviors and attitudes. Of course, I will credit you, Dr. Fineout-Overholt, and Dr. Mays as the instrument creators and cite the source appropriately in my dissertation.

If you need further details about my research methodology or have any questions, I am more than willing to provide them. I am truly grateful for your permission to use this invaluable tool in

my work.

Thank you very much for considering my request. I look forward to hearing from you.

Warm regards,
Marissa Mirecki, OTR/L
Valdosta State University

Appendix H:

Permissions: The Evidence-Based Practice Inventory

ELSEVIER LICENSE
TERMS AND CONDITIONS

Apr 05, 2025

This Agreement between Marissa Mirecki ("You") and Elsevier ("Elsevier") consists of your license details and the terms and conditions provided by Elsevier and Copyright Clearance Center.

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