

Dedication

This dissertation is dedicated to my parents. They facilitated my love of learning and fostered my achievements. Their love, support and guidance underlie each of my successes. The reason that I believe in me is because they believed in me.

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Provider-Identified Implementation Barriers to Providing Cognitive Processing Therapy in VA:

A Review of the Literature and Changes Over Time

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Abstract

Incidents of Posttraumatic Stress Disorder (PTSD) are high, especially in veterans exposed to combat. Strongly supported, efficacious treatment options exist, including Cognitive Processing Therapy (CPT) to treat the disorder and improve outcomes for patients. CPT has been trained widely in the Department of Veterans Affairs (VA). Despite national dissemination and training, utilization rates have been low. Using data from the 2008, 2011, 2014, and 2016 VA Cognitive Processing Therapy Practice Survey, the present study examined the trajectory of provider reported barriers to implementation of CPT across the four survey distributions. The sample was analyzed using frequencies within and across survey years for all variables, multiple regression analysis was used to explore relationships between continuous variables, and cross-tabulation analysis was used to explore relationships between categorical variables. Chi-square tests of independence and logistic regression analyses were then conducted to explore differences in barriers by year and profession. Any barriers with increased likelihood in one or more cohort years were included in a 3-way Chi-Square test of independence to explore the possibility that *profession* moderates the relationship between *barrier* and *cohort year*. Results indicate that CPT trained treatment providers reported a decrease in specific barriers to providing CPT over the course of the dissemination program, and that social work and psychology professions related to increased barriers in the earliest iteration of the survey. The VA CPT implementation program may have had some effect on specific barriers, further study is indicated.

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Chapter 1: Introduction and Background

Statement of the Problem

Posttraumatic Stress Disorder (PTSD) is an often chronic condition that is one of the more common mental disorders in the United States, and especially among United States combat veterans. A detailed summary of PTSD prevalence research in those who deployed in support of recent military conflicts found an estimated 15% prevalence of PTSD in this group (Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015). PTSD is associated not only with mental health distress, but also decreased functional status in physical health, occupational status, and wellbeing, increased physical limitation, and overall impaired quality of life (Holbrook, Hoyt, Stein, & Sieber, 2001; Ramchand, et al., 2015; Schelling, et al., 1998; Momartin, Silove, Manicavasagar & Steel, 2004; Shnurr, Lunney, Bovin, & Marx, 2009; Thomas, et al., 2010).

There is a clear base of evidence for using evidence-based practices (EBPs) to treat Posttraumatic Stress Disorder and alleviate related symptoms. Multiple clinical practice guidelines for the treatment of PTSD developed by various professional organizations, institutes, countries and federal agencies unanimously endorse cognitive behavioral therapy as the most effective to treat PTSD; specifically Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) (Forbes et al., 2007; Foa, Keane, & Friedman, 2009; National Collaborating Center for Mental Health, 2005; Ursano et al., 2004; The Management of Posttraumatic Stress Disorder Work Group, 2017). Cognitive Processing Therapy is supported by almost 30 years of research and has been demonstrated to be effective and efficacious to treat PTSD across a variety of populations and treatment settings.

Large bodies of treatment outcome research demonstrating effective ways to treat mental health disorders and resulting peer-reviewed practice guidelines demonstrate a clear vision: systems and clinicians utilizing research-based practices to ensure that effective care is available

for people with mental illness. The practice of this vision remains unrealized. Dissemination of research to clinical practice settings and resulting implementation remains elusive in many cases (Haines, Kuruvilla & Matthias, 2004). The research to practice gap, and the specific challenges of implementing evidence-based practices have been observed across health care systems and disciplines, and are relevant to understanding the utilization of Cognitive Processing Therapy to treat PTSD, particularly in settings with veterans.

The use of Social Cognitive Theory within a general determinant implementation framework applied to CPT implementation in the Veterans Health Administration (VHA, also abbreviated as 'VA') allows for observation of the professional social context factors that act as facilitators or barriers of CPT utilization. Although all VA outpatient centers offer evidence-based practice for PTSD (CPT and PE), implementation of CPT and PE remains low at many sites (Finley, et al., 2015). One study of six VA specialty PTSD clinics (five of which had academic affiliations) showed that only six percent of patients received any sessions of an evidence-based psychotherapy for PTSD (Watts et al., 2014). EBPs are not implemented by providers for a variety of reasons, including lack of time, supervision or organizational support for the treatments, provider preference for supportive therapy, low provider confidence, or fear of harm as a result of EBPs for PTSD (Borah et al., 2013). Even amongst programs that report use of CPT and PE, adaptations are common; changes to content, style of presentation, number of sessions and even active components of treatment (Cook, Dinnen, Thompson, Simiola & Schnurr, 2014). Sayer and colleagues (2017) describe that among studied PTSD specialty programs in VA, most clinicians describe trying to follow CPT manuals, with some treatment teams describing significant changes in delivery and implementing only parts of the treatment protocol. Focus on fidelity among these teams varied, with some providers reporting beliefs that

research on adaptation is necessary, and that lack of adaptation leads to drop out. Research across mental health services indicates that offering a service that *resembles* [italics added] an evidence-based practice is not sufficient; adherence to specific programmatic standards, often referred to as fidelity of implementation, is necessary to produce expected outcomes” (Drake et al., 2001, p.2).

It is clear that despite VA’s strategic and well-resourced implementation effort, adoption of evidence-based practice is low. Despite the low rate of adoption reported in the above mentioned studies, there is some evidence gathered through provider surveys following CPT training that shows that factors that have historically impeded implementation have reduced over time in VA (in this case, between the 2008 and 2011 survey) (Chard, Ricksecker, Healy, Karlin & Resick, 2012). This study hints at the fact that as the implementation program has evolved, adapted and improved, it may be targeting specific implementation barriers. To date, most research on EBP implementation in VA has been primarily systems or patient-focused (e.g. Keller & Tuerk, 2016; Mott, Stanley, Street, Grady, & Teng, 2014) and research integrating the provider’s perspective has been non-specific to the type of EBP being implemented (e.g. Finley et al., 2015) or specific to residential treatment settings (Cook et al., 2014). Provider-reported barriers to implementing other evidence-based practices are significant, and yet these factors are not understood in relation to provider implementation of CPT in VA. There is a noticeable gap in the literature about the influence and trajectory of provider-specific barriers to CPT implementation in the VA over time.

Purpose of the Project and Significance of the Study

This study aims to review and better understand the VA’s ongoing Cognitive Processing Therapy dissemination effort, and specifically to discern how CPT trained providers’ reported

barriers to implementation of CPT have changed over the course of the effort. Findings will help inform the understanding of provider identified factors that affect implementation of CPT for the treatment of PTSD in VA. The study will also generate broader knowledge on other social contextual psychotherapy factors (such as social processes, structural support and resources and provider clinical beliefs and decision making) that may impact the rate of adoptions of this treatment, and this knowledge may be applicable to other evidence-based trauma-focused manualized treatments. Further, if there is an identified change in provider-reported barriers over time, it may spur further investigation to understand what specific intervention or training program changes impacted specific implementation barriers. This research will contribute to the development of more precise and accurate dissemination and implementation strategies for evidence-based practice programs, ideally leading to an increase in access to efficacious training programs, increased utilization of CPT and subsequently, improved outcomes for patients receiving care.

Project Overview

What follows is a comprehensive research-based review of: the background of PTSD, the literature supporting Cognitive Processing Therapy as an intervention for PTSD, commonly identified barriers to implementation of evidence-based practices, and specifically implementation barriers for CPT in VA and beyond. Data collected from four iterations of the VA Cognitive Processing Therapy Practice Survey will be analyzed to identify changes in mean number of provider-reported implementation barriers over time, and any demographic moderators between survey cohort and specific barriers. Implications and limitations of findings are discussed, along with future directions for research.

Research Question

The literature review laid out below, combined with survey data collected from providers through VA, will seek to answer the following question: Among therapists who have completed CPT training in the VA, what barriers do they report as affecting their delivery of CPT, and have these reported barriers changed over time?

Chapter 2: Literature Review

Posttraumatic Stress Disorder

Posttraumatic Stress Disorder (PTSD) is an often chronic condition that can occur in response to a traumatic event or events. The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013) identifies a tetrad of symptom clusters that occur after experiencing a Criterion A Trauma¹, that categorize the presentation of PTSD: arousal, avoidance, negative cognitions and mood, and re-experiencing. These specific symptoms are part of the complex presentation of PTSD that is associated with suffering, decreased functioning, physical health consequences, intergenerational impacts disability and morbidity (Foa, Keane, Friedman, & Cohen, 2008; Schnyder & Cloitre, 2015). PTSD can occur over many years, and has a high rate of reoccurrence. The costs of PTSD for the individual and

¹ Diagnostic criteria for PTSD identify a Criterion A trauma as: “exposure to actual or threatened death, serious injury or sexual violation. The exposure must result from one or more of the following scenarios, in which the individual:

- directly experiences the traumatic event;
- witnesses the traumatic event in person;
- learns that the traumatic event occurred to a close family member or close friend (with the actual or threatened death being either violent or accidental); or
- experiences first-hand repeated or extreme exposure to aversive details of the traumatic event (not through media, pictures, television or movies unless work-related).

The disturbance, regardless of its trigger, causes clinically significant distress or impairment in the individual’s social interactions, capacity to work or other important areas of functioning. It is not the physiological result of another medical condition, medication, drugs or alcohol.

society are widespread, from individual impacts on employment, relationship functioning, and physical health risks to increased dependency on welfare and family dysfunction (Kessler, 2000).

Epidemiology. Posttraumatic Stress Disorder is one of the more common mental health disorders in the United States population. The National Comorbidity Survey Replication estimated the prevalence of PTSD among adult Americans over their lifetime to be 6.8% (Kessler, et al., 2005), or about 1 in every 15 adults. Active Duty service members and veterans of the United States military are at increased risk for experiencing PTSD due to exposure to violence in war. Current military engagements have been fought by an all-volunteer military force and are hallmarked by multiple deployments among service members, and subsequently, increased exposure to combat and related violence and death that may meet Criterion A for PTSD diagnosis. In a detailed summary of PTSD prevalence research in those who deployed in support of OIF/OEF, Ramchand and colleagues (2015) reviewed 116 studies published between 2009 and 2014 and found an estimated 15% prevalence of PTSD in this group, with much variance in prevalence reports that may be due to differences within subsets of the population.

Further, service members and veterans may develop PTSD in relation to other life experiences military-related and otherwise. An independent assessment of sexual assault and gender discrimination in Active-Duty military members completed by the RAND corporation in 2014 found that 4.9 percent of active-duty women and 1 percent of active-duty men experience one or more sexual assaults in the past year (Morral, Gore, & Schell, 2015). There is not consensus in the literature as to how these rates relate to the general population, with studies finding the military rates of sexual assault comparatively high (Turchik & Wilson, 2010) and others finding it (Black & Merrick, 2013) of similar prevalence. Regardless of the occurrence

rates' relationship to the general population, numbers of those impacted remains significant and contributes to the rate of veterans who develop PTSD.

Theoretical understanding of PTSD development. Posttraumatic Stress Disorder can be considered a disorder of non-recovery. If the event is severe enough most people will have symptoms of PTSD immediately following a traumatic event, but these symptoms typically remit after a few weeks (Rothbaum, Foa, Riggs, Murdock, & Walsh 1992). Thus, to be diagnosed with PTSD symptoms must be present for more than one month to differentiate normal recovery from persistent disorder. A prospective study conducted by Barbara Rothbaum (1992) and her colleagues demonstrate the process of normal recovery through their findings. The study assessed for symptoms of PTSD weekly from the time of a rape. A week following the rape, 94% of the women assessed met criteria for PTSD. Over the course of 12 weeks, many women recovered from their symptoms naturally. These findings further the understanding that there is a normal recovery process following a traumatic event, and that overtime the symptoms experienced no longer trigger each other and the event becomes one of autobiographical memory rather than that contributes to clinically significant distress. In the case of PTSD, behavioral formulations posit that that avoiding strong emotions or beliefs about a traumatic event facilitates the continuation of symptoms of intrusion and arousal and prevents normative processing and recovery (Keane, Zimering, & Caddell, 1985). When trauma memories and related beliefs are avoided and unchallenged or unexamined, post-trauma symptoms continue beyond a normal recovery period and may exacerbate.

Treatment of PTSD. Trauma-focused treatment approaches initiate clients/patients to exposures of previously avoided thoughts and emotions, and allows them to examine their understanding of the event in a way that avoidance prohibited. Change in trauma-related beliefs

are strongly associated with change in PTSD symptoms in cognitive-behavioral based treatments from post-treatment through a 5-10 year follow up period (Scher, Suvak, & Resick, 2017).

There is emerging literature connecting cognitive-behavioral treatment to resulting neurocognitive changes that explain symptom reduction (Shou et al., 2017). This conceptualization of disorder development and targeted treatment underlies the recovery-based orientation and understanding of mechanisms to treat PTSD in evidence-based trauma-focused treatment, specifically those with a cognitive-behavioral approach.

This strongly supported theoretical formulation of PTSD development and the resulting body of evidence for treatment approaches that directly address the root causes has led to the calls for use of EBPs to treat PTSD and alleviate related symptoms. Multiple clinical practice guidelines for the treatment of PTSD developed by various professional organizations, institutes, countries and federal agencies unanimously endorse cognitive behavioral therapy as the most effective means to treat PTSD; specifically Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) (Forbes et al., 2007; Foa, Keane, & Friedman, 2009; National Collaborating Center for Mental Health, 2005; Ursano et al., 2004; The Management of Posttraumatic Stress Disorder Work Group, 2017).

Despite its complexity, PTSD and resulting symptoms, dysfunction, and problems have been found to be responsive to targeted psychotherapy treatment. An analysis of all randomized controlled trials of PE and CPT among military and veteran populations show that 49-70% of those receiving these treatments attained clinically meaningful symptom reduction; which by definition, describes a treatment effect that has a noticeable impact on daily life (Steenkamp, Litz, Hoge, & Marmar, 2015). Reducing symptoms of PTSD can increase functioning in all psychosocial realms.

Cognitive Processing Therapy

Although CPT and PE are both founded in Cognitive Behavioral Theory, the approaches and mechanisms of treatment are different, and therefore, likely have different barriers to implementation. This review and the following study will specifically focus on Cognitive Processing Therapy. Cognitive Processing Therapy is a primarily cognitive therapy designed to identify and modify cognitions that develop due to a traumatic event and that underlay symptomology of PTSD (Resick, Monson, & Chard, 2016). CPT can be delivered in a group, individual, or combined group and individual format. The therapy is manualized for 12 sequential sessions, but can be flexed from 7-15 sessions.

CPT is inspired by and derived from social cognitive models and posits that schemas (cognitive organizing frameworks) related to self, other, and the world are likely to be affected by trauma (Resick et al., 2016). These theories understand that dysfunction after trauma (PTSD specifically) is developed from conflicts between prior positive schemas and the trauma, or reinforcement of prior negative schemas that often developed in childhood. At the initiation of treatment, the therapist and client determine whether a written account will be included. If so, CPT-A (CPT with account) will begin, and sessions will follow a manualized protocol, including an additional assignment of a written trauma account at sessions four and five. If the client and therapist determine that an account is not beneficial or wanted, the CPT protocol will be initiated. Initial CPT sessions focus on building insight by increasing awareness of cognitions and related emotions through psychoeducation and cognitive behavioral techniques. From there, the therapy moves to identify and challenge “stuck points” (specific cognitions that are untrue, inflexible, or unhelpful and function to maintain PTSD symptoms and negative emotional experiences) and develop flexibility and balance in the thought process. The process leads to

clients breaking the cycle of self-reinforcing negative emotional experiences (manufactured emotional experiences) and identify and allow for processing of natural emotional experiences related to the traumatic event that have previously been avoided. Trauma-focused stuck points (assimilated stuck points) are the initial focus of challenge and examination, followed by stuck points that are more broadly oriented (overaccommodated stuck points). The final sessions are focused on change in cognitions by identifying alternatives to stuck points in adopting more adaptive, balanced and flexible thoughts. There is a specific focus in targeting beliefs related to safety, trust, power and control, esteem and intimacy – all of which are beliefs found to be commonly negatively impacted by traumatic events. Upon completion of the protocol, it is expected that the clients have learned new skills to apply to their thought processes independently, and that recovery can continue without the assistance of the therapist, although a therapist can be available for “booster sessions” to reinforce CPT concepts if needed.

Randomized controlled trials of CPT. There is a rich body of literature supporting the efficacy of Cognitive Processing Therapy for treatment of PTSD, with twenty randomized controlled trials (RCTs) to date. A review of the RCTs yields information on the efficacy of CPT to treat PTSD across a broad range of populations, presenting comorbidities and identified index traumas², and holds specific positive findings regarding the use of CPT in military and veteran populations with PTSD.

There are multiple randomized controlled trials that examine Cognitive Processing Therapy as a treatment of PTSD as a result of interpersonal traumas, specifically: rape (Resick, Nishith, Weaver, Astin, & Feuer, 2002; Bass et al., 2013), child sexual abuse (Chard, 2005) rape

² The definition for “index trauma” is identified by Criterion A for the diagnosis of PTSD in either DSM IV-TR or DSM V (with the definition varying slightly in each version) depending on the time of publication.

and physical assault (Resick et al., 2008) and other interpersonal and mixed traumas (Galovski, Blain, Mott, Elwood, & Houle 2012; Galovski et al., 2016; Butollo, Karl, König, & Rosner, 2015). Although the aim of the studies varied, each of them established efficacy of CPT in reducing symptoms of PTSD. With the exception of an RCT that studied CPT in Congolese women (Bass et al., 2013), sample sizes in the studies were large, ranging from 71-150 participants, with six of the seven studies having a sample size of 100 or more. The strengths of these RCTs include: intent to treat analysis, the data encompasses all of participants who entered into the trials, not just those who completed care; inclusive sampling, participants with comorbid major depressive disorder, and including individuals with chronic presentations of PTSD. These studies show CPT to be as effective as Prolonged Exposure (Resick et al., 2002), to be effective in reducing PTSD and depressive symptoms in incarcerated adolescents (Ahrens & Rexford, 2002) and to perform better than wait-listed control groups (Chard, 2005), Treatment As Usual (Bass et al., 2013), and Gestalt therapy (Buttolo et al., 2016).

There are also several randomized controlled trials that examine Cognitive Processing Therapy for PTSD with military and veteran populations. These studies examine PTSD from a military related stressor (combat, military sexual trauma, etc.) among US servicemembers and veterans, and one Australian sample (Forbes et al., 2012). These studies establish the efficacy of CPT: in standard VA treatment conditions (Monson et al., 2006); over video-teleconferencing to rural populations (Morland et al., 2014), with women (both veteran and civilian) (Morland et al., 2015) and veterans of Operation Iraqi Freedom and Operation Enduring Freedom (Maieritsch et al., 2016); with Active Duty military personnel both in group and individual treatment (Resick et al., 2015; Resick et al., 2017); and with an identified index trauma of Military Sexual Trauma (Surís, Link-Malcolm, Chard, Ahn, & North, 2013).

Recent trials have included a non-inferiority trial to observe outcomes of CPT in comparison to a written exposure therapy (Sloan, Marx, Lee, & Resick, 2018), a trial comparing outcomes of treatment for therapists based on three different post-workshop support strategies (Monson, et al., 2018) and a study observing the addition of Transcranial Magnetic Stimulation to CPT versus CPT as usual (Kozel et al., 2018). In addition to broadening the knowledge on the treatment of PTSD, each of these studies demonstrated significant positive outcomes for CPT for PTSD.

Limitations of RCTs for CPT. Although randomized controlled trials show strong findings for CBT-based trauma-focused therapies and offer promising symptom reductions for many, between 13 and 39% terminate treatment early (Steenkamp, Litz, Hoge, & Marmar, 2015). Additionally, these protocols may not treat the disorder to extinction in most clients: mean posttreatment ratings of nine randomized controlled trials of CBT-based trauma-focused therapies CPT and PE showed that 60-72% of patients remained at or above the clinical criteria for PTSD (Steenkamp et al., 2015). These numbers may be even higher in practice outside of the research setting, where the tight controls associated with experimental treatments (i.e., resources to conduct outreach to appointment no-shows) are unavailable. It is clear that despite proven efficacy, there are a number of situations in which some clients may not attain optimal outcomes from these treatments.

There is some indication that CPT and other Cognitive Behavioral treatments may not be as effective for combat-related traumas and military populations in comparison to other trauma types and populations overall. Bradley and colleagues (2005) found in a multidimensional meta-analysis of psychotherapy for PTSD that across treatments, there are lower effect sizes for

combat-related PTSD. The CPT literature reflects this finding, with lower effect sizes for veterans/military than civilian participants (Monson et al., 2006).

There is limited research of CPT outside of western culture. Of the twenty randomized controlled trials related to CPT efficacy, only two studies examines the efficacy amongst a different population. Bass and colleagues (2013) found a small to medium effect size to increase dimensions of social capital among treatment seeking survivors of sexual violence in Central Africa. Bolton and colleagues (2014) found moderate to strong effects on measured mental health and social outcomes for adapted CPT in survivors of systematic violence in Kurdistan, north Iraq using the same clinical and research team as the Bass study. Effect sizes were smaller in the Kurdistan group. These studies are promising in providing some evidence that CPT can work for non-western groups, but the limitations for generalizability were many. The study designs specifically created to fit the culture and circumstance of the participants, and the variance in effect sizes between the studies further imply that effectiveness may vary by culture.

Additional CPT Findings

In addition to randomized controlled trials for efficacy, there is a wide research base demonstrating the effectiveness of CPT in a variety of settings and with various patient comorbidities, as well as studies observing the acceptability of CPT to patients with PTSD. The studies discussed below are some findings on comorbidities (including Traumatic Brain Injury (TBI), alcohol and substance use disorder) and patient preference concerns that are often reported as barriers to implementing CPT by VA providers. For purposes of clarity, although related to this point, discussions of specific CPT efficacy studies related to implementation are discussed at other points in the paper (See section: Implementation of CPT in VA).

Cognitive Processing Therapy research suggests that CPT may be effective in improving PTSD and TBI related cognitive symptoms. In two studies completed in a Cincinnati VA Residential Program, where PTSD is treated using CPT along with cognitive rehabilitation programming, veterans with mild and moderate/severe TBI improved significantly on PTSD symptoms (Chard, Schumm, McIlvain, Bailey, & Parkinson, 2011; Walter, Kiefer, & Chard, 2012;). The sample in each study was relatively small (N=42; N=28 respectively), but provides evidence towards the utilization of CPT for those with TBI and possibly other cognitive impairments. This research suggests an interdependent relationship between PTSD symptoms and TBI impairments and proposes that successful treatment of one condition may result in reduced symptoms in the other condition.

Cognitive Processing Therapy has been found to be useful for individuals with comorbid alcohol use disorder (AUD). A study conducted by chart review of 536 veterans diagnosed with PTSD who received at least 1 session of CPT found that 49% carried an AUD diagnosis (Kaysen et al., 2014). There were no significant differences found between veterans without an AUD diagnosis on the number of sessions of CPT that were completed, and both groups (AUD and not) showed large reductions in symptoms of depression and PTSD from pre to post-treatment.

Additionally, it appears then when educated and provided with a pre-treatment orientation group to encourage an informed decision-making process on the part of the patient, VA patients seeking PTSD treatment prefer evidence-based practices, and specifically CPT. Schumm and colleagues (2015) showed that in a mostly male sample in a VA specialty clinic, patients prefer a combination of medication and therapy to treat PTSD, and when provided an orientation to a variety of treatment options, the veterans' endorsed CPT and PE over other psychotherapies. Another study (Lamp, Maieritch, Winer, Hessinger, & Klenk, 2014) found that more patients

expressed interest in group CPT (47%) than in any of the other 5 treatment options offered.

These studies are part of a large body of evidence showing CPT as being effective and acceptable under clinical practice conditions.

Theoretical Framework for Implementing CPT

Significant outcomes for CPT in high quality research across patient comorbidities and circumstances has led to its recommended use for treating PTSD in guidelines across government, scientific and professional organizations. Despite high-level recommendations and specific guidelines within VA and DOD, rates of reported adoption of CPT and other trauma-focused EBPs remain low in both organizations (Tanielian & Jaycox, 2008; Watts et al., 2014).

The VA Cognitive Processing Therapy Practice Survey used to examine CPT implementation in VA (and to explore the research question within this paper) was developed without a specific theoretical foundation for the purpose of information gathering and utilization for program monitoring and evaluation. The questions were formulated from the clinical and supervisory experiences of the VA CPT training team. The specific questions related to provider barriers are based on the assumptions (and reports from clinicians) that many important provider barriers are based in contextual factors (workload, supervision, peer and staff support, scheduling, etc.) and can have an influence on utilization (K. Chard, personal communication, May 24, 2017).

The Improved Clinical Effectiveness through Behavioural Research Group points out that theory has been largely absent in the body of implementation work (2006). Implementation work has been organized around frameworks, which reflect a constellation of understandings, beliefs, and methods embraced by an intellectual community. The series of developed implementation frameworks generally list domains and constructs, but do not organize them into

meaningful relationships or imply interactions between the constructs. Therefore, many of these frameworks remain atheoretical. The application of theory is important to apply a systematic method to understand and explain why implementation succeeds or fails, and in recent years the field of implementation science has moved towards inclusion of theory to better understand how and why implementations occur successfully or not (Nilsen, 2015). This progress has been limited and theory continues to remain largely absent across implementation studies.

Despite the absence of validated frameworks, theories or tools that fit this particular study and survey, the proposed research question and inquiry formulation rest upon a theoretical framework and a theory at its foundation: Determinant framework and Social Cognitive Theory. Determinant frameworks focus on impediments and/or facilitators that have impacts on implementation outcomes (Nilsen, 2015), and look to the study and understanding of these variables to improve the implementation process. Determinant frameworks do not point to causality, and therefore are not theories; rather they provide structure to explore relationships between independent (barriers, enablers) and dependent variables (implementation). Most often, in implementation studies, a framework of specific determinants is used based on researcher preference or existing research in the area. Although there are a multitude of frameworks available in the literature, they tend to be so context specific that they do not get used broadly, or if they do they are heavily modified so that comparison of their use across contexts cannot be easily made. This study uses a determinant framework model as a basis of understanding that relates provider identified variables by VA trained CPT therapists as impactful on the use of the therapy.

Further, this study looks to specific professional social contextual factors as barriers to implementation based on Social Cognitive Theory. Social Cognitive Theory understands

learning as a process occurring through interactions between cognitive, affective and biological events, behavioral patterns and environmental events (Bandura, 1999). Social Cognitive Theory understands that what is being learned interacts with existing frameworks of knowledge. This theory goes beyond traditional behavioral understanding of observation being the sole driver of learning and incorporates more comprehensive bi-directional mechanisms and explains the integration of new information as interacting with existing knowledge, motivation, beliefs, attitudes, elements of attention, and environment.

Social Cognitive Theory is critical to the logic that posits provider barriers and resulting implementation as potentially related or influenced by each other within a determinant framework. The professional social context (the place and environment in which they apply or do not apply the learning from CPT training) of a CPT therapist includes the general social processes with superiors and peers, the structure of the clinical setting, the beliefs of the therapist about CPT and treatment in general and other factors. The professional social context impacts their ability and choice to apply the techniques learned in CPT training at any given time. This perspective situates the provider and their professional social experience and context as the most important actor in the implementation of CPT; they are the responsible party to take the learning from training and move to integrating it into practice. The broader understanding of contextual and other influence on behavior provided by this theory explains what barriers impact the use of CPT on the individual level and throughout the VA, and are reflected in the literature on implementation of trauma-focused EBPs and CPT in VA explored below.

Implementation of Trauma-Focused EBPs in VA

In one of the first comprehensive looks at trauma-focused EBP utilization in the VA, Rosen and colleagues (2004) surveyed providers in 6 VA medical centers in one geographical

area in 1999 and 2001 to assess their use of PTSD treatment methods, including those recommended by the International Society for Traumatic Stress Studies practice guidelines (Foa, Keane, & Friedman, 2000). The surveys found that the majority of the clinicians who responded were not practicing with manualized or trauma-focused treatment; they reported primary use of present-focused psychoeducational skills, with few clinicians reporting discussing traumatic events in therapy. Even less clinicians used exposure therapy. Further, the use of trauma-focused therapy *declined* between 1999 and 2001. Of note, many of the VA's investigated in this study were strongly affiliated with academic medical centers, institutions which may be more prone to adopting evidence-based practices, and therefore may not make the findings reflective of other VA hospitals. While limited on the basis in self-report rather than observable behavior, this study sheds light on a vast discrepancy between guideline recommendations and reported practice.

In observance of these findings, and in an attempt to provide training to reinforce institutional treatment guidelines, starting in 2005, the VA initiated a major effort to nationally disseminate evidence-based practices, including Cognitive Processing Therapy. As of 2016, more than 10,000 providers have received training in one or more evidence-based psychotherapies, and that number continues to grow (Rosen, Ruzek, & Karlin, 2017). Cognitive Processing Therapy is trained over 2-3 days in an intensive workshop which introduces theory, research, skills, procedures, and a session-by-session overview of CPT. Learning occurs through presenter lecture and demonstration, video examples and participant role play with feedback. After completion of the workshop, clinicians are assigned to a consultation group where they receive weekly telephone sessions from an expert clinician consultant over a 4-6 month period. This model of training is reflective of the VA training model overall (Karlin & Cross, 2014).

Results of VA EBP implementation.

Many of the published results of the VA's CPT training program and implementation are embedded in studies examining implementation of general evidence-based practice trainings and trauma evidence-based practice trainings in VA. Across EBP's the VA's training programs have had high rates of completion; Rosen and colleagues (2017) reviewed multiple studies of VA EBP implementation and observed that 85-90% or more of those who initiated completed the training process. Their review concludes that in VA providers trained in EBPs for PTSD, the literature supports improvements in therapists' competencies in trained skills, along with improved clinical outcomes. However, they note that among providers who indicated use of CPT, they do not use it routinely, with about 69% reported to use it "rarely" or less than half of the time. These findings are reflected in numerous single site studies that used chart reviews to determine whether patients received CPT or PE for PTSD (Hundt et al., 2015; Kehle-Forbes et al., 2016; Lamp et al., 2014; Lu et al., 2016; Meis et al., 2014a, b; Mott, Mondragon, Hundt, Beason-Smith, Grady, & Teng, 2014; Mott, Stanley, Street, Grady, & Teng, 2014). Shiner and colleagues (2013) found similar outcomes in a study of 6 VA sites using natural language processing to classify notes to determine utilization of CPT or PE. This study found that only 6.3% of the population studied received at least one session of either the PE or CPT protocol for PTSD.

Numerous implementation studies have sought to better understand what prevents utilization of EBPs after training. There appears to be a disconnect between the improved outcomes found with training, and the low utilization of the techniques to achieve these outcomes. Chorpita & Regan, in their 2009 paper on dissemination of effective mental health treatment procedures, identify that research-evidence is clearly not enough to convince providers

of utilization, pointing to examples in the literature on children's mental health that show much higher utilization of some of the least research supported treatments compared to higher supported treatments. As CPT dissemination leaders within the VA recognized low adoption of CPT, changes and enhancements were made to the training process, moving the initial focus of the program from dissemination (spreading knowledge and information through training) towards a program that includes comprehensive strategies and tools to support implementation (the utilization of the knowledge learned in training to change clinical practice). Specifics of this shift will be discussed later in section: Changes in VA Implementation Over Time.

Facilitators and barriers of implementation of CPT in VA. Although implementation of trauma-focused EBPs, including CPT, in VA have been more specifically studied than in other systems of care, this area of inquiry is still developing. The focus of implementation research has been largely on elements that facilitate or prevent implementation of evidence-based practices. In many cases barriers and facilitators are interrelated (i.e. implementation is facilitated by a strong leader but the absence of a facilitator (leadership support) can just as easily be a barrier). Research on EBP implementation in VA has been primarily systems- or patient-focused (e.g. Keller & Tuerk, 2016; Mott, Hundt, Sansgiry, Mignogna, & Cully, 2014) and research integrating the provider's perspective has been non-specific to the type of EBP being implemented (e.g. Finley et al., 2015) or qualitative (Cook et al., 2013; Cook et al., 2015). The VA system that is large and diverse, and implementation barriers can be local and context specific. Despite these facts, there are several factors that appear to be commonly identified facilitators and barriers to the implementation of CPT across the system.

Recent CPT implementation studies have shed light on specific predictors of implementation in VA as reported by VA providers within residential treatment settings. A

mixed methods study of survey and qualitative interviews with 198 VA clinicians from 38 different residential treatment programs examined evidence of several predictors of implementation of CPT (Cook et al., 2015). Predictors with significant correlation to implementation included: social processes such as communication and influence through networking among peers and through formal avenues (e.g. consultations groups, listeservs) and specific structural supports such as dedicated time and resources (sometimes achieved through program restructuring). Also, clinical beliefs such as providers' view of treatment compatibility with training (i.e. does the general approach, theory, practice of the treatment match with what they have previously learned in school or other training), observability of outcomes and perceptions of the relative advantage of CPT over other treatments proved impactful on CPT implementation.

It is critical to understand social processes and supports at play that influence the uptake of treatments being disseminated. Provider's perceived barriers to implementing trauma-focused EBPs that have been discussed in the literature include workgroup culture and lack of buy-in to the treatment (Chard et al., 2012; Hamblen et al., 2015). In their qualitative study of VA PTSD specialty clinics with high, medium and low use of PE and CPT to treat PTSD, Sayer and colleagues (2017) identified several themes and dimensions that were associated with intervention reach (the percent and representativeness of individuals within a defined population who receive a specific intervention) of evidence-based psychotherapies for PTSD. Clinic missions related to the use of EBPs as well as team engagement (leadership and staff) in the sustainment of CPT and PE related to high reach of the treatments within the clinic. Further, this study found that the environment and infrastructure surrounding the clinic, including support of general mental health leadership, expectation of the scope of care provided in the clinic in

relation to other hospital programming and the organization-wide culture of mental health and recovery (i.e. beliefs that PTSD treatment needs are lifelong), indicating that the influence of social processes extend well beyond the specific clinic where PTSD treatment occurs.

Cook and colleagues (2013) observed in the first round of the mixed methods study discussed above a number of structural and resource related barriers related to implementation of PE and CPT. The most commonly reported barriers were structural incompatibility and inadequate time for training or consultation. This finding is reflected by Chard and colleagues' (2012) observation from a survey of providers who completed CPT training, that the most frequently reported reasons for not starting CPT as workload and scheduling barriers: "having little or no room in schedule" and "workload is too heavy." The response rate for the surveys evaluated was 43.2 percent (2008) and 34.1 percent (2011), so it is unclear as to whether characteristics of those who responded vs those who did not may reflect different experiences of barriers. Further study has shown that clinic operations, policies and procedures, such as screening procedures, monitored use of outcomes data and specific clinical support of a peer consultation group as associated with higher use of CPT and PE (Sayer, et al., 2017). A review of implementation studies for trauma-focused EBPs in VA found that a key facilitator is alignment of resources to support delivery of the treatments (Rosen et al., 2017). It is clear that structural compatibility, the provision of resources and targeted clinic operations policies and procedures are facilitators of EBPs, and the absence of these are likely to create barriers to implementation of CPT in VA.

Providers in the Cook et al. study (2013) reported clinical beliefs and resulting decision making that negatively impacted the use of trauma-focused therapies for PTSD. Specifically, providers reported fear that symptom exacerbation would be a result of using EBP treatments

and chose not to implement based on these concerns. Other barriers reported were based on clinical prioritization (e.g. prioritizing case management, discharge planning). It is important to note that some of the providers interviewed had not completed training in CPT or PE, so their limited understanding of the treatments may have impacted their treatment decisions. Hamblen and colleagues (2015) noted that the majority of directors of PTSD specific programs in VA were preceding EBPs with preparatory skills-based treatment, findings which hint at a provider related barrier of perceiving patients being unable/unready to participate in treatment. The barrier of provider's believing that trauma-focused EBPs like CPT and PE as only appropriate for patients who are "ready" is reflected by many clinicians across studies (Barnett et al., 2014; Cook et al., 2014; Cook et al., 2017; Osei-Bonsu et al., 2016; Zubkoff et al., 2016). It is worth noting that "readiness" assessments (besides the assessment for potential exclusionary criteria such as immediate risk for suicide or untreated substance dependence) and preparatory skills-based pre-treatment are not part of the treatment protocols for CBT-based trauma-focused treatments in any of the efficacy and effectiveness trials used to establish these treatments. It appears that at minimum these steps are unnecessary, and at maximum may be a major barrier to providers selecting to initiate CPT with their clients and may prevent provision of effective evidence-based care.

The existing VA EBP implementation literature suggests that there are several specific barriers to implementation. It is important to understand these barriers as they relate to providers, as providers are the "gatekeepers" of these therapies. Barriers to implementation for providers are present in complex and interrelated ways and present themselves in a variety of contexts. Based on the literature discussed above, it appears that the most prominently identified provider-related barriers to implementation of EBPs in VA, specifically CPT include factors

related to: social processes, structural support and resources and provider clinical beliefs and decision making.

Changes in VA EBP implementation over time. While implementation research is flourishing, little is understood regarding changes in provider reported barriers of implementation over time in a large-scale dissemination program like that of VA. Significant changes have been made to VA mental health care on the national and local level throughout the EBP implementation process. There has been an increase in funding for mental health positions and increased hiring initiatives since 2007. With the publication of the 2008 Uniform Mental Health Services in VA Medical Centers and Clinics handbook (the guidelines that outline the minimum clinical requirements for VA hospitals and clinics providing mental healthcare) (Department of Veterans Affairs, 2008) it became required that all VA Medical Centers provide access to either CPT or PE. Karlin and Cross (2014) reviewed the VA's multidimensional implementation efforts and identified many of the strategies being used, including policy, staffing and system changes, accountability measures and patient level resources. Specific strategies include local Evidence-based Practice Coordinators that have been established at each VA medical centers to support delivery of EBPs. Access to training materials and training modalities have increased, including online learning courses, a PTSD National Mentoring program, listservs and other supportive practice groups. Direct to patient informational and educational materials have been developed and are available online for direct-to-client education that may lead to increased client interest, or client facilitation of seeking specific treatments. Monitoring and evaluation of efforts has increased, including EBP training program evaluation at both the therapist and client level. Additionally, as more providers receive training each year, there are more opportunities for information exchange amongst providers, increased access to

providers with the training to facilitate the therapy for the patients, and further opportunities for formal and informal peer-based consultation opportunities. The efforts and ongoing facilitation of training activities are designed to increase provider adoption, resulting in access to EBPs for veterans seeking care for treatment of PTSD in VA.

The VA's major implementation effort targets changes in provider, patient and system barriers to promote the use of evidence-based practice for PTSD. There is some evidence that this effort has had a modest effect in improving the dissemination of knowledge and utilization (e.g. Watts et al., 2014; Cook et al., 2013, Karlin & Cross, 2014). Karlin & Cross (2014) presented a number of important outcomes of VA dissemination and implementation of EBPs (not specific to, but including CPT); demonstrating that across programs, training completion was between 80-90%, primary patient outcomes have been in the medium-to-large or large range, and that of the veterans who complete EBPs for PTSD, they show a 30% reduction in mental health utilization and 40% reduction in healthcare expenses in the following year, indicating overall health improvement. These findings demonstrate progress towards targeted outcomes of the VA effort.

Changes in VA CPT implementation over time. Specific to CPT, Cook and colleagues (2014) show that CPT training for residential program providers in the VA's Northeast region has increased from 62.0% of eligible providers trained to 71.1% between surveys (initial surveys took place 2008-2011 with follow ups taking place 2010-2012). There was also an increase in those who participated in training completing certification. From baseline follow up, 31.6% of the programs experienced an increase in use of CPT.

Data collected from CPT providers' surveys reflect a change in provider perspectives of barriers to training participation over time (Chard, et al., 2012). Factors that have historically

impeded implementation (therapist reported barriers to using CPT, attendance to CPT consultation calls and reasons for not starting CPT with patients) reduced significantly between the first (2008) and second (2011) iteration of the survey.

Although this finding shows some reduction in implementation barriers, the trajectory of implementation related to those barriers throughout a large implementation program has not been studied over time. Evaluation of implementation (both the true reach and uptake of CPT, as well as the associated barriers and facilitators) is a challenge in a system like VA, despite having one shared electronic medical record. Historically, billing codes have not adequately captured the type of psychotherapy delivered. Beginning in November 2014, the VA has initiated a systematic method using note templates to monitor EBP use, but the implementation of this system has been long and not without challenges. Self-report data gathered through medical records is subject to reporting bias and limited in its ability to accurately capture behavior. Additionally, there is a noticeable gap in the literature on measurement of the quality and fidelity of the interventions being measured. Thus, it is challenging to observe the changes in use of EBPs in VA in a broad scale.

Summary of Literature

It is clear that Posttraumatic Stress disorder has problematic impacts for society overall, and for military, veterans and their families in particular. Fortunately, there is compelling evidence that treatment of PTSD is possible. The literature reviewed in this paper specifically highlights Cognitive Processing Therapy as a targeted intervention to treat PTSD. There are numerous randomized controlled trials and multiple effectiveness studies to support these findings.

As a result of CPT's evidence base, the VA initiated large scale training of CPT throughout its network of hospitals and clinics. Despite large numbers of providers trained, few veterans are receiving CPT or other evidence-based practices to treat PTSD. Social Cognitive theory posits that the integration of training into practice is influenced by the broader social context. The VA-based CPT implementation literature highlights some general barriers that impede implementation reflective of this theory (social processes, structural support and resources, and provider clinical beliefs and decision making). Provider-identified barriers that reflect the professional social context may be highly significant, based on providers being the direct facilitators of CPT. It is unknown how these barriers change over time in the face of the policy changes, large-scale dissemination and training initiative with its iterative and targeted implementation techniques that have occurred in the VA from 2005 to present. It can be assumed that in a large and dynamic context, factors such as barriers to implementation are also impacted. An examination and analysis of CPT provider data and specifically their identification of implementation barriers from large scale surveys may fill this important gap in the literature.

The breadth of VA psychotherapy implementation literature is clear in demonstrating specific professional social contextual variables that impact utilization of evidence-based practices. To better understand the changes in implementation barriers to CPT over time in VA, this study examines the following research question: Among therapists who have completed CPT training in the VA, what barriers to implementation of CPT are reported and have these barriers changed over time?

Chapter 3: Methodology

VA Cognitive Processing Therapy Practice Survey

National roll out of VA Cognitive Processing Therapy began in 2005 and included training and other dissemination activities. The VA Cognitive Processing Therapy Practice Survey was initiated as an ongoing program evaluation tool for the first time in 2008. Data from survey responses have informed and guided programmatic changes over time. The survey and its questions were designed strictly for program evaluation purposes and were not distributed as research or data collection tools. As a result, this tool has significant limitations when used to evaluate change over time in the VA such as: inability to track multiple responses by the same individuals in initial iterations of the survey (due to anonymity), and changes in question content and wording over time. The VA Cognitive Processing Therapy Practice Surveys were sent to all VA providers who attended a CPT training between 2008 and 2016. These surveys were sent and collected at four time periods: 2008, 2011, 2014 and 2016, and at each timepoint, all of those who had been trained were included (See Table 1). Over the course of the four surveys, questions were slightly modified, and specific questions and sections were added to the survey based on further areas for program evaluation and deeper understanding of what components were important to CPT practice in VA. The specific changes related to provider barriers are discussed in detail below in sequence.

2008 and 2011. Chard and colleagues discuss the first two iterations of the survey in their 2012 paper (Chard et al., 2012). The initial survey was sent in March 2008 to all clinician attendees of the CPT national trainings held from July 2007 to March 2008. Training participants were invited via email to complete the anonymous online survey. It was administered through Inquisite Survey (Allegiance Inc; Austin, Texas) Internet Software system. The survey inquired about demographic and work-setting information, as well as CPT specific

training, caseload and service delivery items including barriers to implementation of CPT, attendance of consultation calls and adherence to treatment protocol.

Following the initial survey, programmatic changes to the national rollout were initiated based on responses. These modifications were specifically designed to address barriers to implementation of CPT. Specific efforts were made to define and highlight the commitment required for successful training, including the development of a mandatory training agreement for the clinician and their supervisor to complete prior to application into the CPT program. Consultation calls were increased in number and times offered, and clinicians were assigned to a regular call for consistency of consultation. As more clinicians were trained, decentralization of training began, increasing training efforts and developing local expertise. Training and treatment materials were improved; incorporating help sheets for tough concepts and developing resources for consultants (CPT Consultants Manual) and for clinicians (bi-monthly live meeting tutorials and web-based CPT enhancement course). Further, implementation support for evidence-based practices overall increased, to include VA-wide policy change and specific EBP coordinator roles at each hospital.

A follow-up to the initial survey was sent in February 2011 (Chard et al., 2012) to the same cohort (VA clinicians trained in CPT between July 2007 and March 2008) as a way to assess the impact of the programmatic changes initiated. Training participants were invited via email to complete an anonymous online follow-up survey conducted using SurveyMonkey (Portland, Oregon) Internet software system. Additionally, the initial CPT Practice Survey was sent to all VA clinicians that attended CPT national rollout trainings between January 2009 and December 2010.

2014 and 2016. Two additional surveys were sent in 2014 and 2016. For both the 2014 and 2016 surveys, training participants were invited via email to complete the online survey, and participants were identified using an identifying number assigned through VA Central Office Evidence-based practice database. Both surveys were administered through Survey Monkey (Portland Oregon) Internet Software system.

The 2014 survey was sent in April of 2014 to all providers who were trained in the VA CPT national rollout from 2006-2014. The survey included the questions from the 2011 survey, with few modifications in wording for clarity, and introduced new questions regarding: achievement of CPT provider status (meaning that the participant completed both training and consultation in full), general and specific clinical caseload, utilization of treatment other than CPT to treat PTSD, and skill and knowledge level of specific components of CPT treatment.

The 2016 survey was sent in in May of 2016 to all providers who were trained in the VA CPT national rollout from 2006-2016. The survey incorporated all questions from the 2014 survey, and included new questions in relation to: clinician sense of their CPT's effectiveness, pre-treatment support and motivational enhancement, clinician theoretical orientation and practice setting. Additionally, new categories of reported barriers to implementation were added as response options for related questions based on 2014 survey responses (discussed in detail below, see: Measures).

Over the course of the four iterations of survey collection, at each point, all providers who had received training, regardless of whether they were captured in a previous survey, were re-sent the surveys (see Table 1 below). The aim of this strategy was to capture the highest number of CPT clinicians possible, and to understand the broader factors of utilization at each point in time. Further, this survey was developed as a program evaluation tool, and was not

intended for research purposes. The CPT training team operated under the assumption that application of training and utilization of CPT may change over time and this view gave them a sense of the nation-wide picture of CPT. Initially, the survey was anonymous, but beginning in 2014, participants were tracked with EBP ID numbers from the VA EBP database. Starting in 2014, the clinicians surveyed began to include all individuals who were trained in CPT starting in 2006, up until the point of the survey. The same strategy was used for the 2016 survey. The ID numbers for the 2008 and 2011 surveys are different from the 2014 and 2016, making it impossible to track those who participated in training from 2008 and 2011 over time. It is possible to identify individuals who completed the survey more than one time in later iterations of the survey.

Year	Training Periods Included
2008	July 2007-March 2008
2011	July 2007-March 2008 January 2009-December 2010
2014	2006-2014
2016	2006-2016

Table 1: *Survey Distribution Table*

Measures

Specific implementation barriers were elicited in the surveys through questions about barriers, with multiple options to identify (clinicians were instructed to choose all answers that applied by checking boxes from a listing of options below the specific question). The question varied slightly in phrasing (2008 and 2011 “What are barriers to using CPT with more of your patients?; 2014 and 2016 “What barriers exist for you in using CPT with more of your patients?). Additional options were added throughout the years (see Table 2 below), but the measures here are reflective of those available for measure across all four time points. The specific

implementation barriers measured and the variables used to capture these concepts are described below:

Workload Barrier: Workload barriers to implementation are operationalized by selection of “My workload is too heavy to try it with more patients”

Supervision Barriers: Supervision barriers to implementation are operationalized by selection of “I need more ongoing supervision/consultation to apply it with more patients”

Administrative Support Barriers: Administrative support barriers to implementation are operationalized by selection of “There was minimal administrative support for implementing CPT”

Schedule Barriers: Schedule barriers to implementation are operationalized by selection of “I have no or little room in my schedule to see weekly CPT patients”

Patient Barriers: Patient barriers to implementation are operationalized by selection of “I am hesitant to use it with the patients in my caseload because of their particular issues/comorbid disorders”

Interestingly, the above identified barriers, although selected by the CPT training team prior to the bulk of the CPT implementation research, map within three broader categories that are seen broadly in the implementation literature (and discussed in the previously presented literature review); barriers related to social processes (supervision barriers), barriers of structural support and resources (administrative barriers, workload barriers, schedule barriers) and barriers of provider clinical beliefs and decision making (patient barriers). This indicates that although the survey was developed based on experiences of the training team, the items identified as barriers to observe may closely correspond to barriers observed across implementations of EBPs in general.

It is worth noting that based on responses to the 2014 survey, additional barriers were included as options for response in the 2016 survey. These additions were made based on coding the free text “Other” response option endorsed by providers and added with each survey to better capture the implementation barriers experienced. Of 2016 respondents who endorsed “Other” barriers in 2014 (n=291), 39% (n=100) endorsed the patient disinterest barrier, and only 37% (n=95) continued to endorse “other” barriers in 2016, suggesting their perspectives were better captured in the 2016 survey. It appears the inclusion of additional categories has helped to provide more specific information regarding CPT barriers to implementation. Although this data is uniquely helpful in understanding barriers reported by providers, these additional items were not included in analysis, as they have not been measured at all four time points (see Table 3.1).

Table 3.1. Survey response options for implementation barriers by year

Barriers	2008	2011	2014	2016
I do not experience barriers to using CPT			X	X
My workload is too heavy to try it with more patients	X	X	X	X
I need more ongoing supervision/consultation to apply it with more patients	X	X	X	X
I have no or little room in my schedule to see weekly CPT patients	X	X	X	X
There was minimal administrative support for implementing CPT	X	X	X	X
I am hesitant to use it with the patients in my caseload because of their particular issues/comorbid disorders	X	X	X	X
Other (please specify)	X	X	X	X
There was minimal staff support for implementing CPT			X	X
There was minimal peer support for implementing CPT			X	X
My current position does not allow for use of CPT				X
Patients are not interested in receiving CPT				X
Patients prefer other EBPs				X

Demographic variables were elicited in the surveys through questions about provider characteristics (i.e. “What is your profession?”) with multiple options to select the label that is most appropriate. The following demographic variables were collected from survey participants including on average number of hours worked per week for the VA (40 or more hours, 30-39 hours, 20-29 hours, 10-19 hours, 1-9 hours, None), gender of respondents (male, female), number of years since highest degree was completed (i.e. less than a year ago, 1 to 5 years ago, 6 to 10 years ago, 11 to 20 years ago, more than 20 years ago); and professional affiliation (i.e.,

psychologists, social worker, psychiatrist, nurse, other). Note that for the variables: average number of hours worked per week for the VA and number of years since highest degree was completed, although the variable is continuous, but measured categorically, and the categories were linear and more or less equal, the values representing them were used similarly to a Likert scale in order to attain the additional info on rate of change. Number of hours worked per week for the VA was coded as: 5 represented 40 or more hours, 4 represented 30-39 hours, 3 represented 20-29 hours, 2 represented 10-19 hours, 1 represented 1-9 hours, and 0 represented None. number of years since highest degree was completed was coded as: 5 represented 40+ hours, 4 represented 30-39 hours, 3 represented 20-29 hours, 2 represented 10-19 hours, 1 represented 1-9 hours, and 0 represented None. While the response categories for *Nurse* included Nurse APRN, Nurse CNS, and Nurse Practitioner, these groups were collapsed to into one category (nurse) for analysis to reflect the other categories with a discipline specific title without specificity of licensure. Additionally, only those professions that were listed as possible response categories on all four survey iterations were included in analysis.

Data Analysis

To describe the sample, frequencies were run within and across survey years for all variables. Chi-square analysis was conducted to explore relationships between categorical variables (professional affiliation, gender of respondents, implementation barriers, and cohort year). Multiple regression analysis was conducted to explore relationships between continuous demographic variables (average number of hours worked for the VA per week, number of years since highest degree was completed) on the total number of barriers. The analysis also included a *gender* binary dummy variable (female = 1, male =0).

Analyses were then conducted to explore differences in barriers by year and profession. First, five logistic regression models were run to model the likelihood of experiencing a barrier by year. Models included one *barrier* dummy variable as the binary dependent variable (DV) (experienced the barrier=1, did not experience the barrier = 0) and four *cohort year* dummy variables as binary independent variables (IVs), each representing one year in comparison to the other three years combined: 2008 (2008 = 1, all other years = 0), 2011 (2011 = 1, all other years = 0), 2014 (2014= 1, all other years = 0), and 2016 (2016 = 1, all other years =0).

Any barriers with increased likelihood in one or more cohort years were included in a 3-way Chi-Square test of independence to explore the possibility that *profession* moderates the relationship between *barrier* and *cohort year*. Relationships were identified as significant if the Standardized Residual was greater than |2|. A significant negative Standardized Residual (-2 or greater) suggested that there were fewer people in that category than would be expected by chance. A significant positive Standardized Residual (+2 or greater) suggested that there were more people in that category than would be expected by chance.

Chapter 4: Results

VA Cognitive Processing Therapy Practice Survey

The 2008 Cognitive Processing Therapy Practice Survey was sent to 753 providers. Three hundred twenty-five completed the survey, providing a response rate of 43.2 percent.

In early 2011, the survey was sent to two groups: the same cohort of VA mental health providers administered the 2008 survey, and to the group who completed training between January 2009 and December 2010. The follow-up survey to the initial cohort was emailed to 753 clinicians, 111 did not have working VA email addresses and were lost to follow-up. 241 out of the 642 remaining clinicians completed this survey, producing a response rate of 37.5 percent.

The cohort that completed training from January 2009- December 2010 of the survey was sent to 1,153 clinicians, 46 were lost to follow-up and 541 of the remaining 1,107 clinicians completed the survey, providing for a response rate of 48.9 percent. For purposes of analysis by time period, both groups of surveys recipients are combined into one-time point for the purposes of this study, yielding 782 total responses from the 1,749 individuals that were successfully sent the survey giving an overall response rate of (44.7%).

The 2014 survey was successfully sent to 4,054 providers (survey was sent to 4,219 providers and 165 emails bounced back). The survey yielded a 42 percent response rate (1714 responses) with 33 opting out (~1%) and 2312 that did not respond (57%).

The 2016 survey was sent to 6,477 providers. The survey yielded 2158 responded to survey, a 33 percent response rate, with 65 opting out (~1%) and 2640 who did not open the email.

Table 4.1 Response Rates by year of survey and entire sample (successfully sent vs response)

	2008	2011	2014	2016	Total
Number Successfully Sent	753	1749	4054	6477	13,033
Response Rate					
N	325	782	1714	2158	5,006
Percent	43.2%	44.7%	42%	33%	38.4%

Demographics of entire sample. Over the course of the four surveys there were 13,033 surveys successfully distributed, with 5,006 responses overall (see Table 4.1 for surveys sent and response rates by survey year and for the total sample). Of the 5,006 of responses to the survey, the total sample was 69.88% women and 30.13% men (See Table 4.2). The majority of providers identified themselves as either psychologists (45.28%) or social workers (42.70%). Few of the

providers were new providers, only 6.23% respondents identified that it was less than 1 year since completion of their degree. Most of the respondents were full time employees and worked 40+ hours per week (94.28% of the total sample).

Demographics by cohort. As shown in Table 4.3, several demographic variables were unequally distributed across cohort years. For instance, there were more Nurses in the 2008 cohort (*Std. Residuals* = 3.0), more Social Workers in the 2011 cohort (*Std. Residuals* = 2.8), fewer clinicians who reported “Other” in the 2011 cohort (*Std. Residuals* = -4.2), and more clinicians who reported “Other” in the 2016 cohort (*Std. Residuals* = 4.7) than would be expected if professions were equally distributed across cohort years. There were also fewer clinicians who graduated with their degree under a year ago in the 2011 cohort (*Std. Residuals* = -6.0) than would be expected if *time since degree* was evenly distributed and more of them in the 2016 cohort (*Std. Residuals* = 4.70). Additionally, fewer clinicians in the 2016 cohort reported graduating 11-20 years ago (*Std. Residuals* = -2.7)

Finally, fewer clinicians reported working no hours for the VA in the 2008 cohort (*Std. Residuals* = -2.0), the 2011 cohort (*Std. Residuals* = -2.8), and the 2014 cohort (*Std. Residuals* = -4.6) than would be expected if working no hours for the VA were evenly distributed and more clinicians reported working no hours for the VA in 2016 (*Std. Residuals* = 8.0).

Table 4.2. Demographics by year of survey and entire sample

		2008	2011	2014	2016	Percent across years
Gender	Male	30.90%	31.80%	31.20%	26.60%	30.13%
	Female	69.10%	68.20%	68.80%	73.40%	69.88%
Profession	Psychologist	47.10%	42.10%	46.30%	45.60%	45.28%
	Psychiatrist	1.80%	1.60%	1.50%	1.80%	1.68%
	Social Worker	38.50%	50.40%	43%	38.90%	42.70%
	Nurse	5.40%	3.20%	2.10%	1.70%	3.10%
	Other	7.20%	2.80%	7.10%	12.00%	7.28%
Years Since Completion of Degree	Under 1	4.1%%	0.20%	7.40%	11.10%	6.23%
	1 to 5	23.40%	21.70%	19.30%	23.50%	21.98%
	6 to 10	21.20%	27.00%	24.70%	25.10%	24.50%
	11 to 20	31.50%	32.50%	29.20%	23.80%	29.25%
	20+	19.80%	18.50%	19.50%	16.40%	18.55%
Hours Worked Per Week for the VA	40+	95.50%	96.90%	94.40%	90.30%	94.28%
	30-39	2.20%	1.20%	1.80%	1.70%	1.73%
	20-29	1.80%	1.20%	2.30%	1.60%	1.73%
	10-19	0.40%	0.60%	0.80%	0.90%	0.68%
	1-9	0.00%	0.00%	0.40%	0.40%	0.20%
	None	0.00%	0.20%	0.30%	5.10%	1.40%

Table 4.3 Chi square test of independence of demographics on cohort

			Cohort Year			
			2008	2011	2014	2016
Gender	Male	Count	68	156	497	312
		Std Resid	0.3	0.9	1.1	-2.0
	Female	Count	152	334	1097	862
		Std Resid	-0.2	-0.6	-0.7	1.3
Chi-Square (3, $N=3478$) = 8.39, $p<0.05$						
Profession	Psychologist	Count	104	213	740	536
		Std Resid	0.3	-1.1	0.5	0.1
	Psychiatrist	Count	4	8	24	21
		Std Resid	0.2	-0.1	-0.4	0.4
	Social Worker	Count	85	255	687	457
		Std Resid	-0.9	2.8	0.4	-1.8
	Nurse	Count	12	16	34	20
		Std Resid	3.0	1.2	-0.6	-1.4
	Other	Count	16	14	113	141
		Std Resid	-0.5	-4.2	-1.5	4.7
Chi-Square (12, $N=3500$) = 68.87, $p<0.01$						
Years since finishing degree	Less than 1	Count	9	1	118	131
		Std Resid	-1.8	-6.0	0.0	4.7
	1 to 5 years	Count	52	110	309	276
		Std Resid	0.7	0.2	-1.7	1.6
	6 to 10 years	Count	47	137	394	295
		Std Resid	-1.1	0.9	-0.2	0.1
	11 to 20 years	Count	70	165	466	280
		Std Resid	1.0	1.9	0.9	-2.7
	More than 20	Count	44	94	311	193
		Std Resid	0.5	0.1	1.1	-1.5
Chi-Square (12, $N=3502$) = 86.01, $p<0.01$						
Hours per week working for VA	40 or more	Count	213	494	1509	1061
		Std Resid	0.3	0.8	0.4	-1.1
	30-39 hours	Count	5	6	29	20
		Std Resid	0.6	-0.9	0.3	0.0
	20-29 hours	Count	4	6	36	19
		Std Resid	-0.1	-1.1	1.2	-0.6
	10-19 hours	Count	1	3	13	10
		Std Resid	-0.5	-0.5	0.2	0.3
	1-9 hours	Count	0	0	6	5
		Std Resid	-0.8	-1.3	0.4	0.7
	None	Count	0	1	5	60
		Std Resid	-2.0	-2.8	-4.6	8.1
Chi-Square (15, $N=3506$) = 107.77, $p<0.01$						

Implementation Barriers

The majority of survey respondents reported little (only 1) to no barriers to using CPT with their clients (See Table 4.4). Across cohorts, almost half of the sample (45.1%) reported no barriers and 25.6% reported only one barrier. Very few providers (0.2%) reported experiencing

5 barriers to implementing CPT with their patients.

Table 4.4. Total number of barriers reported across cohorts

	Total Barriers	
	N	%
No Barriers	1736	45.1
1 Barrier	984	25.6
2 Barriers	568	14.8
3 Barriers	207	5.4
4 Barriers	45	1.2
5 Barriers	6	0.2
Missing	301	7.8
Total	3847	100

As seen in Table 4.5 there were no significant differences in the total number of barriers based on gender ($B=-0.04$, $p=0.33$) or hours per week working for the VA ($B=-0.03$, $p=0.23$).

There was a significant increase in the total number of barriers as years since the completion of highest degree increased (i.e., respondents who completed training longer ago reported more barriers; $B=0.05$, $p<0.001$).

Table 4.5. Multiple regression analysis of demographics on the total number of barriers

	B	SE	<i>B</i>	t-value	p-value
Gender	-0.04	0.04	-0.02	-0.97	0.33
Years since completion of highest degree	0.05	0.01	0.06	3.66	0.001
Hours per week work for the VA	-0.03	0.02	-0.02	-1.20	0.23
(Constant)	0.72	0.06		11.44	0.00
$R=0.69$					

Implementation Barriers by Cohort

When the total number of the specific measured implementation barriers is viewed over time, it is clear that there has been a reduction in reported barriers by clinicians between 2008 and 2016. The mean number of total barriers reported in 2008 was 1.67 ($SD=1.18$), was 1.07

($SD = 1.04$) in 2011, was 0.78 ($SD = 0.96$) in 2014, and was 0.64 ($SD = 0.89$) in 2016 (See Figure 4.1).

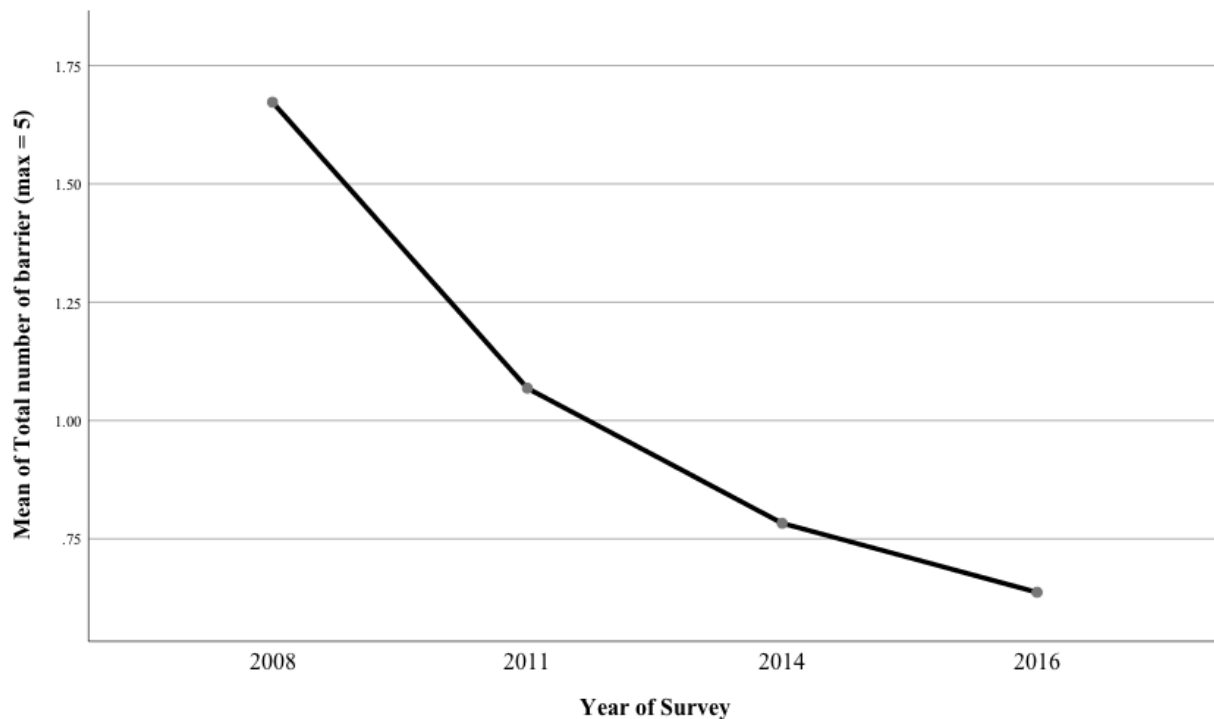


Figure 4.1: Mean number of specific barriers reported barriers by year of survey

There were also considerable changes to the commonly identified implementation barriers to the use of CPT across the four cohorts. Each of the 5 identified implementation barriers (workload barriers, supervision barriers, administrative support barriers, schedule barriers, patient barriers) trended downward in percentage of clinicians who reported each barrier at each time point, with one exception of a .06% increase in report of patient barriers between 2011 and 2014 (See Figure 4.2).

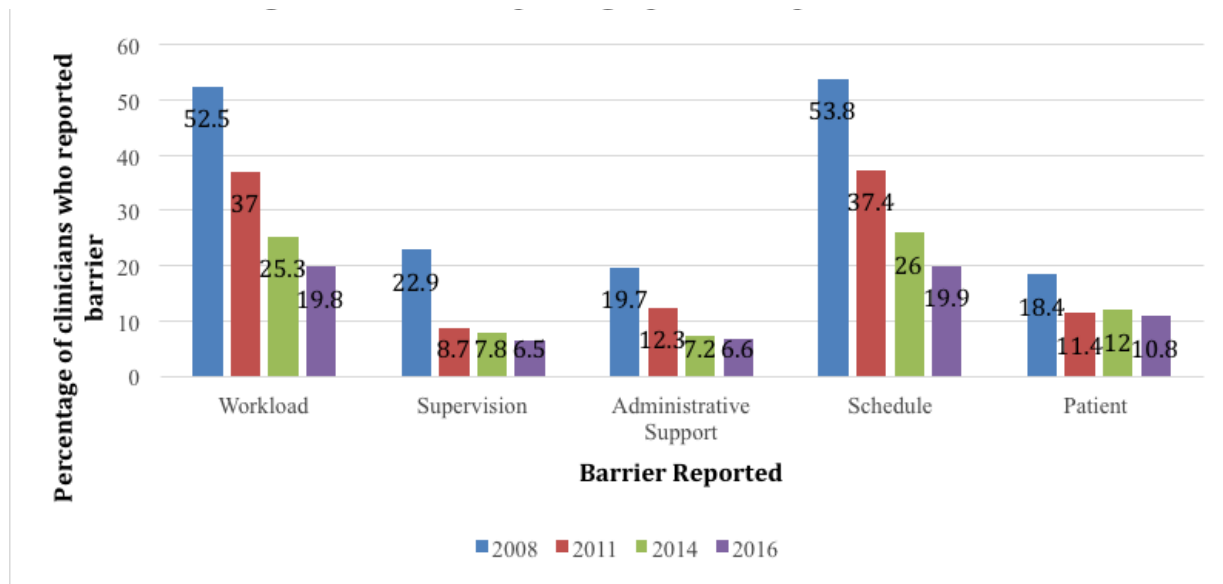


Figure 4.2. Percentage of Clinicians Reporting Specific Implementation Barriers

As shown in Table 4.6, there were significant differences among cohorts in the number of clinicians who reported experiencing workload barriers. More practitioners in cohort years 2008 (*Std. Residual* = 7.4) and 2011 (*Std. Residual* = 4.5) reported workload barriers than would be expected if there were no differences among cohorts. Additionally, fewer clinicians reported experiencing workload barriers in 2016 (*Std. Residual* = -4.7) than would expected if there were no differences among cohorts.

Table 4.6 Chi-Square test of independence of workload barrier on cohort

		Cohort Year			
Workload Barrier		2008	2011	2014	2016
No	Count	106	332	1197	957
	Std Resid	-4.5	-2.7	0.7	2.9
Yes	Count	117	195	406	236
	Std Resid	7.4	4.5	-1.2	-4.7
Chi-Square (3, <i>N</i> =3546) = 134, <i>p</i> <0.01					

As shown in Table 4.8, there were differences among cohorts on the number of clinicians who reported experiencing scheduling barriers to the use of CPT. More practitioners in cohort years 2008 (*Std. Residual* = 7.5) and 2011 (*Std. Residual* = 4.4) reported scheduling barriers than would be expected if there were no differences among cohorts. Additionally, fewer clinicians reported experiencing scheduling barriers in 2016 (*Std. Residual* = -4.9) than would expected if there were no differences among cohorts.

Table 4.8 Chi-Square test of independence of schedule barriers on cohort

		Cohort Year			
Schedule Barrier		2008	2011	2014	2016
No	Count	103	330	1187	955
	Std Resid	-4.6	-2.7	0.7	3.0
Yes	Count	120	197	416	238
	Std Resid	7.5	4.4	-1.1	-4.9
Chi-Square (3, <i>N</i> =3546) = 54.88, <i>p</i> <0.01					

As shown in Table 4.10, there were differences among cohorts on the number of clinicians who reported experiencing supervision barriers to the use of CPT. More practitioners in the 2008 cohort year reported supervision barriers than would be expected if there were no differences among cohorts (*Std. Residual* = 7.4). Additionally fewer clinicians reported experiencing supervision barriers in 2016 than would expected if there were no differences among cohorts (*Std. Residual* = -2.3).

Table 4.10 Chi-Square test of independence of supervision barriers on cohort

		Cohort Year			
Supervision Barrier		2008	2011	2014	2016
No	Count	172	481	1478	1115
	Std Resid	-2.2	-0.1	0.30	0.70
Yes	Count	51	46	125	78
	Std Resid	7.4	0.2	-0.9	-2.3
Chi-Square (3, $N=3546$) = 66.44, $p<0.01$					

As shown in Table 4.12, there were differences among cohorts on the number of clinicians who reported experiencing patient barriers. More practitioners in the 2008 cohort year reported workload barriers than would be expected if there were no differences among cohorts (*Std. Residual* = 2.8).

Table 4.12 Chi-Square test of independence of patient barriers on cohort

		Cohort Year			
Patient Barrier		2008	2011	2014	2016
No	Count	182	467	1410	1064
	Std Resid	-1.0	0.1	0.0	0.4
Yes	Count	41	60	193	129
	Std Resid	2.8	-0.4	0.1	-1.1
Chi-Square (3, $N=3546$) = 10.30, $p<0.05$					

As shown in Table 4.14, there were differences among cohorts on the number of clinicians who reported experiencing administrative barriers to using CPT. More practitioners in the 2008 cohort (*Std. Residual* = 5.7) and 2011 cohort (*Std. Residual* = 3.0) reported administrative barriers than would be expected if there were no differences among cohorts. Additionally fewer clinicians reported experiencing administrative barriers in 2016 (*Std. Residual* = -2.3) than would expected if there were no differences among cohorts.

Table 4.14 Chi-Square test of independence of administrative barriers on cohort

		Cohort Year			
Administrative Barrier		2008	2011	2014	2016
No	Count	179	462	1488	1114
	Std Resid	-1.7	-0.9	0.6	0.7
Yes	Count	44	65	115	79
	Std Resid	5.7	3.0	-1.9	-2.3
Chi-Square (3, $N=3546$) = 54.88, $p<0.01$					

Moderator Analysis of Implementation Barriers by Profession

Psychologists and Social Workers were the only professions across cohorts with higher or lower rates of workload barriers than would be expected (See Table 4.16). More Psychologists (*Std. Residuals* = 4.3) and more Social Workers (*Std. Residuals* = 5.2) in the 2008 cohort reported workload barriers than would be expected. Additionally, fewer Psychologists (*Std. Residuals* = -3.7) and fewer Social Workers (*Std. Residuals* = -2.0) reported workload barriers in 2016 than would be expected if workload barriers were experienced at the same rates across professions (see Table 4.16). The difference seen across professions in 2008 and 2016 suggests that profession moderates the relationship between workload barriers and cohort.

Table 4.16. Chi-Square test of independence of workload barriers on cohort by profession

Profession			Cohort Year			
			2008	2011	2014	2016
Psychologist	No	Count	56	123	570	444
		Std Resid	-2.5	-2.9	0.7	2.1
	Yes	Count	48	90	170	92
		Std Resid	4.3	5.0	-1.2	-3.7
Psychiatrist	No	Count	0	3	13	14
		Std Resid	-1.5	-0.6	0.1	0.9
	Yes	Count	4	5	11	7
		Std Resid	1.5	0.6	-0.1	-0.9
Social worker	No	Count	34	172	497	347
		Std Resid	-3.4	-0.6	0.5	1.3
	Yes	Count	51	83	190	110
		Std Resid	5.2	1.0	-0.8	-2.0
Nurse	No	Count	6	10	19	16
		Std Resid	-0.5	0.0	-0.5	1.0
	Yes	Count	6	6	15	4
		Std Resid	0.7	0.0	0.6	-1.3
Other	No	Count	10	9	94	121
		Std Resid	-0.9	-0.7	0.1	0.4
	Yes	Count	6	5	19	20
		Std Resid	1.9	1.6	-0.2	-1.0
Chi-Square (3, $N=3500$) = 131, $p<0.01$						

Psychologists, Social Workers, and Nurses were the only professions across cohorts with higher or lower rates of schedule barriers than would be expected. Psychologists and Social Workers reported more schedule barriers than would be expected in both the 2008 (Psychologists *Std. Residuals* = 5.3; Social Workers: *Std. Residuals* = 4.5) and 2011 (Psychologists *Std. Residuals* = 2.8; Social Workers: *Std. Residuals* = 2.6) cohorts. More Nurses than would be expected also reported schedule barriers in 2011 (*Std. Residuals* = 2.0). Psychologists (*Std. Residuals* = -3.6) and Social Workers (*Std. Residuals* = -2.7) were the only two professions in the 2016 cohort with fewer clinicians reporting schedule barriers than would be expected if schedule barriers were experienced at the same rates across professions (see Table 4.17). The difference

seen across professions suggests that profession moderates the relationship between schedule barriers and cohort.

Table 4.17 Chi-Square test of independence of schedule barriers on cohort by profession

Profession			Cohort Year			
			2008	2011	2014	2016
Psychologist	No	Count	47	133	541	432
		Std Resid	-3.3	-1.7	0.2	2.2
	Yes	Count	57	80	199	104
		Std Resid	5.3	2.8	-0.4	-3.6
Psychiatrist	No	Count	1	3	13	7
		Std Resid	-0.5	-0.2	0.9	-0.6
	Yes	Count	3	5	11	14
		Std Resid	0.4	0.2	-0.8	0.5
Social worker	No	Count	41	166	517	365
		Std Resid	-2.7	-1.5	0.6	1.6
	Yes	Count	44	89	170	92
		Std Resid	4.5	2.6	-1.0	-2.7
Nurse	No	Count	6	5	23	17
		Std Resid	-0.5	-1.6	0.4	1.3
	Yes	Count	6	11	11	3
		Std Resid	0.7	2.0	-0.5	-1.7
Other	No	Count	8	12	89	121
		Std Resid	-1.4	0.2	-0.3	0.6
	Yes	Count	8	2	24	20
		Std Resid	2.8	-0.4	0.5	-1.3
Chi-Square (3, $N=3500$) = 13.26, $p<0.01$						

Psychologists and Social Workers were the only professions across cohorts with higher rates of supervision barriers than would be expected. More Psychologists (*Std. Residuals* = 5.5) and more Social Workers (*Std. Residuals* = 3.9) in the 2008 cohort reported supervision barriers than would be expected if supervision barriers were experienced at the same rates across professions (see Table 4.18). The difference suggests that profession moderates the relationship between supervision barriers and cohort.

Table 4.18 Chi-Square test of independence of supervision barriers on cohort by profession

Profession			Cohort Year			
			2008	2011	2014	2016
Psychologist	No	Count	82	195	698	508
		Std Resid	-1.5	-0.2	0.3	0.4
	Yes	Count	22	18	42	28
		Std Resid	5.5	0.9	-1.3	-1.5
Psychiatrist	No	Count	3	8	19	21
		Std Resid	-0.3	0.3	-0.5	0.5
	Yes	Count	1	0	5	0
		Std Resid	0.9	-0.9	1.6	-1.5
Social worker	No	Count	66	232	623	424
		Std Resid	-1.3	0.1	0.0	0.5
	Yes	Count	19	23	64	33
		Std Resid	3.9	-0.2	0.0	-1.5
Nurse	No	Count	8	13	32	16
		Std Resid	-0.7	-0.1	0.6	-0.2
	Yes	Count	4	3	2	4
		Std Resid	1.5	0.3	-1.5	0.5
Other	No	Count	12	13	102	129
		Std Resid	-0.6	0.1	0.0	0.2
	Yes	Count	4	1	11	12
		Std Resid	1.9	-0.3	0.0	-0.5
Chi-Square (3, $N=3500$) = 63.92, $p<0.01$						

Social Workers were the only profession across cohorts with higher rates of patient barriers than would be expected. More Social Workers (*Std. Residuals* = 2.4) in the 2008 cohort reported patient barriers than would be expected if patient barriers were experienced at the same rates across professions (see Table 4.19). This suggests that profession moderates the relationship between patient barriers and cohort.

Table 4.19 Chi-Square test of independence of patient barriers on cohort by profession

Profession			Cohort Year			
			2008	2011	2014	2016
Psychologist	No	Count	87	182	644	476
		Std Resid	-0.4	-0.3	0.0	0.4
	Yes	Count	17	31	96	60
		Std Resid	1.0	0.7	0.1	-1.0
Psychiatrist	No	Count	4	8	21	21
		Std Resid	0.1	0.2	-0.4	0.2
	Yes	Count	0	0	3	0
		Std Resid	-0.5	-0.6	1.5	-1.1
Social worker	No	Count	68	230	608	411
		Std Resid	-0.9	0.2	-0.1	0.3
	Yes	Count	17	25	79	46
		Std Resid	2.4	-0.7	0.2	-0.8
Nurse	No	Count	9	15	31	19
		Std Resid	-0.6	0.1	0.1	0.2
	Yes	Count	3	1	3	1
		Std Resid	1.7	-0.4	-0.2	-0.7
Other	No	Count	12	13	102	122
		Std Resid	-0.5	0.2	0.3	-0.1
	Yes	Count	4	1	11	19
		Std Resid	1.4	-0.6	-0.8	0.4
Chi-Square (3, $N=3500$) = 10.98, $p<0.01$						

As seen in Table 4.20, Psychologists and Social Workers were the only professions in the 2008 cohort with higher rates of administrative barriers than would be expected. More Psychologists (*Std. Residuals* = 4.4) and more Social Workers (*Std. Residuals* = 3.2) in the 2008 cohort reported administrative barriers than would expected if administrative barriers were experienced at the same rates across professions. The difference seen across professions in 2008 suggests that profession moderates the relationship between administrative barriers and cohort.

Table 4.20 Chi-Square test of independence of administrative barriers on cohort by profession

			Cohort Year			
Profession			2008	2011	2014	2016
Psychologist	No	Count	82	188	688	500
		Std Resid	-1.4	-0.5	0.4	0.4
	Yes	Count	22	25	52	36
		Std Resid	4.4	1.6	-1.4	-1.4
Psychiatrist	No	Count	3	6	21	20
		Std Resid	-0.3	-0.4	0	0.4
	Yes	Count	1	2	3	1
		Std Resid	0.7	1.0	0	-1.0
Social worker	No	Count	69	226	638	424
		Std Resid	-1.0	-0.5	0.4	0.3
	Yes	Count	16	29	49	33
		Std Resid	3.2	1.5	-1.3	-1.0
Nurse	No	Count	11	10	30	17
		Std Resid	0.3	-0.9	0.3	0.10
	Yes	Count	1	6	4	3
		Std Resid	-0.7	2	-0.7	-0.2
Other	No	Count	14	13	107	137
		Std Resid	-0.3	-0.1	-0.1	0.2
	Yes	Count	2	1	6	4
		Std Resid	1.5	0.4	0.4	-1.0
Chi-Square (3, $N=3500$) = 51.26, $p<0.01$						

The results presented in Tables 4.16-4.20 are summarized in Table 4.21. This table shows that in 2008, more psychologists and social workers reported all barriers relative to the other professions (with the exception of patient barriers, which was only higher among social workers). In 2011, only scheduling barriers remained elevated among psychologists and social workers, and in 2014 there was no evidence in any significant differences by profession. By 2016, workload and scheduling barriers ‘flipped’ and were lower among psychologists and social workers than the other professions.

Table 4.21 Summary of Chi-Square test of independence of barriers on cohort by profession

	Workload	Supervision	Administrative Support	Schedule	Patient
Psychologist	+ 2008 - 2016	+ 2008	+ 2008	+ 2008, 2011 - 2016	
Psychiatrist					
Social Worker	+ 2008 - 2016	+ 2008	+ 2008	+ 2008, 2011 - 2016	+ 2008
Nurse				+ 2011	
Other					

Chapter 5: Discussion and Conclusions

Discussion

This study expands on previous efforts to understand factors that are related to low uptake of EBP for PTSD, specifically Cognitive Processing Therapy, by looking at provider-specific barriers to implementation reported by trained CPT providers to observe changes in these barriers over time. The findings from this study shed light on the changes in reported implementation barriers for CPT providers that have occurred over the course of CPT implementation in the Veterans Health Administration. Provider-related barriers to CPT (workload, supervision, administrative support, schedule and patient barriers) have decreased significantly in report by CPT trained providers between 2008 and 2016, with the most significant change happening between 2008 and 2011. The similarity in mean number of reported barriers in the latter two surveys (2014 and 2016) may be indicative of a plateau effect and indicate that the maximum change with from the current interventions have been reached. Workload, schedule and administrative support barriers track downward in a similar pattern, demonstrating that barriers related to structure have continued to decrease over time. Barriers related to patients and supervision also tracked similarly, decreased in between the first and

second surveys, and then staying at relatively the same rate in later iterations. Although patient barriers and supervision barriers categorized differently in this review of the literature (patient barriers were categorized as clinical belief and decision-making factors and supervision barriers as social process factors) they have the similarity that they are reflective of social clinical processes, which are inherently driven by individuals and their perspectives and ability to apply CPT. The plateau in reduction of patient and supervision barriers may indicate that they have been adequately addressed and reduced, either as a natural process of implementation, or as a result of targeted intervention by the VA CPT training team. If in fact a plateau has been reached for these factors, new interventions or training approaches may be needed to reduce these barriers.

While findings observing reported barriers based on provider demographics are limited, there are a few trends observed that may increase understanding of what factors influence barriers to CPT usage. Profession was a moderating variable between each specific measured barrier and cohort. When reviewing the three-dimensional analysis of time, profession and type of barrier, the results show that time and profession are the main factors of influence across all barriers. Specifically, Social Workers and Psychologists were more likely to endorse almost all specific barriers early in the survey cycle (2008). This finding indicates that the professions of psychologist and social workers was related to higher likelihood of reporting barriers to providing CPT early in the implementation and may imply that these groups should be targeted specifically in future similar implementations. Such targeting likely happened over the 8-year implementation period of the current study, perhaps even to the unintended consequence that by 2016 these professions endorsed some barriers less frequently than expected relative to the other clinical professions.

Multiple regression results show that years since completion of highest degree is positively associated with the total number of barriers reported. Further research will be helpful to understand why more senior providers report more barriers to implementation of CPT and why the providers that are newer to the field find less barriers to using CPT. It may be that those who are newer are more receptive to training or have not yet established treatment habits or favorable or unfavorable attitudes toward using CPT as a treatment option for PTSD, and that those who have more experience find it more difficult to implement something new.

Multiple policy and administrative changes occurred during the period of the survey, both through the 2008 Uniform Mental Health Services in VA Medical Centers and Clinics Handbook, and changes made to the CPT training and implementation program (discussed above, see section: Changes in VA implementation over time). As the program evaluation data from the surveys were collected, targeted interventions to reduce specific barriers to implementation were applied. Barriers related to social processes (supervision barriers) were addressed through policy changes from the 2008 Handbook that required administrators and program leads to support some training and use of EBPs in their programming and increased formal and informal supervision opportunities and resources (Department of Veterans Affairs 2008). Social processes were addressed through the VA CPT Implementation program by increasing numbers of localized experts, as well as overall CPT providers, which has increased availability of trained providers for formal and informal consultation and support (Chard et al., 2012). Barriers of structural support and resources (administrative barriers, workload barriers, schedule barriers) were addressed through mandatory training agreements signed by both the provider and their supervisor that created the expectation for the supports needed to provide CPT effectively including time for consultation and available weekly appointments (Chard et al.,

2012). Barriers of provider clinical beliefs and decision making (patient barriers) were targeted in direct-to-patient resources such as take-home materials and videos, to allow for easier introduction of the treatment option to patients, as well as focused education within the training process to educate clinicians on the broad effectiveness of CPT (Chard et al., 2012).

The findings of this study provide increased knowledge on barriers to CPT implementation, and is suggestive of the impact of changes to the CPT training program that have been made over time in response to evaluation data. More broadly, the data serves to suggest trends in implementation barriers in large scale health systems that could have impacts on guiding other systems through large scale implementation. The targeted changes in VA policy and within the CPT training program can be applied to other systems as they create implementation-focused supportive components in their respective organizations and programs. Most importantly, the data allows a more targeted training approach to address the specific barriers being faced by mental health providers in VA currently. Despite the utility of the survey, to glean information for future training initiatives, this study did not test and cannot conclude whether the VA's program changes functionally impacted CPT implementation. The changes in reported barriers may be a function of an increased response rate to the survey, or a function of time.

Limitations. These findings have limited external validity based on the specificity of the data. It is not clear how broadly the knowledge gained from this study applies. Understanding how mental health providers who work in VA differ from mental health providers in other settings is not known. Further, although definite programmatic and policy changes were identified in the CPT implementation program, the significance of other policies and contextual

influences that occurred on the national, local and individual level that may impact implementation of CPT cannot be measured or known, as this research is strictly descriptive.

There are additional limitations to the findings due to the nature of the questions and the methods of collection. The questions of the survey were developed based on knowledge and experience, so reliability and validity of the measures were not ascertained. Further, survey response, and its self-reported nature, is limited by self-reporting bias. Although there were some fields that allowed for more qualitative data collection (“Other” response, with open text field), when it comes to the nuances of context specific knowledge in relation to implementation uptake and adoption, pre-selected answers are limiting. These qualitative responses were coded and added as additional response options in the 2016 survey, but because they did not appear until later, they could not be included in the analysis to understand their evolution over time. These additional responses provide more specific information about implementation barriers; in 2016, the newly added category “Patients are not interested in receiving CPT” was most highly endorsed (31%), followed by scheduling and workload barriers. Tracking the newer options of the survey may result in a different understanding of barriers in VA.

The data is limited to those who responded to the survey, and the respondents are not representative of all CPT-trained providers. There may be differences in CPT implementation, specifically barriers to implementation between those who did and did not complete the survey (i.e. those who are not using CPT at all do not complete the survey). There is no demographic or other data available to better understand the characteristics of those who did not respond. Finally, the surveys were sent to all providers who received training at the time of the specific survey, which means that early trainees were offered the survey on multiple occasions. While in the 2014 and 2016 these individuals were tracked to allow for identification of those who

completed the survey on multiple occasions, this was not done in previous iterations, so it is not possible to understand the implications of responses of individuals across time points.

Despite the limitations of the data due to its sources as program evaluation information, the findings of this study imply decrease of provider-reported barriers to implementation of CPT in VA over time, an important finding to begin to understand the success and challenges of the CPT implementation in VA. This knowledge can be used as a foundation for further areas of research.

Limitations pertaining to the statistical analysis of this survey for this study exist. First, type I error might occur because a large number of tests were conducted for each of the five different types of barriers using Chi-square tests. There is a risk of rejecting a true null hypothesis of no difference. However, this source of bias is likely small given the pattern of findings in the intended direction (i.e., decrease over time), the criterion validity of results (i.e., longer time since degree completion and more barriers to adoption), and consistency of results (all barriers consistently reported by psychologists and social workers). Second, the study samples in the four time periods are not independent from each other. Given the way that the surveys were distributed, a CPT-trained provider might have participated in more than one survey between 2008 and 2016.

Implications for Practice and Recommendations for Future Evaluation.

The results of this study have implications for training of providers and policies and practice to support CPT in VA. The VA has made many of structural, procedural and clinical practice changes to support the implementation of CPT, yet the impact of these changes over time has not been demonstrated. The reduction of primary reported barriers suggests effectiveness of the changes made to implement CPT. The evidence of an ongoing downward

trajectory of specific barriers demonstrates that progress is being made towards facilitating CPT and it can be argued iterative process the CPT training team has used to improve the program has had its intended effect and should be continued moving forward. Future iterations of the survey that collect more data points for the specific barriers addressed in this study will establish whether a plateau has been reached for these barriers, or whether further reduction is occurring. This information can inform whether more time will continue decreases, or whether novel targeted interventions are needed to reduce barriers further. Despite reductions over time identified in this study, barriers of workload and schedule remain the highest barriers reported can guide targeted training efforts, policy and structural modifications to increase the facilitation of CPT for VA clients. The training team can increase guidance to trainees and supervisors around managing access and developing scheduling practices that support CPT usage. The findings of the survey data demonstrate need for policies and programmatic structure that address workload and scheduling issues, such as recovery oriented (and time limited) programming and treatment, as well as staff increases. The training team can use this data to advocate for increased staffing and better scheduling policies at the national level. Ensuring that providers are supported in utilization of evidence-based practice at multiple levels will ensure more frequent use of effective CPT practice.

Future research will build upon these findings to develop more nuanced and specific understanding of CPT implementation and result in more specific guidance to improve utilization in VA. Continuing the method of tracking across survey respondents in future iterations of the survey should yield information regarding changes in implementation of CPT over time on the individual level, and whether barriers continue to change for those after their initial training period. Additional questions about individual behavior and what has impacted any identified

changes can be added to the survey for repeat responders to better understand what factors are influencing changes. Also, the additional items added to the survey as barriers for the 2016 version will increase precision of understanding barriers. To develop deep and rich understanding of implementation barriers to CPT and how the policies and processes in place impact these barriers on the individual level, qualitative inquiry of providers of CPT is needed with a targeted focus on furthering understanding of what influences these barriers, and how it related to use of CPT. Future areas for study in CPT implementation should also target impact of specific training and implementation interventions on barriers to utilization.

Conclusions

CPT is highly established as a beneficial treatment for PTSD through multiple effectiveness and efficacy studies. Limitations in utilization of CPT in VA created the need for further study to understand implementation barriers for using CPT in this system. Initial data suggests that early reported barriers to utilization of CPT have decreased over time. Observation of specific changes made to the CPT program in VA, paired with the findings that identified barriers have been reduced, informs ongoing practice for implementation of CPT in VA, and may inform future research for the implementation for CPT and EBPs in other settings more broadly. Findings related to the unique impact of profession indicate that profession specific interventions may be an area of focus for future implementation activities and specific targeted training activities. Use of these strategies can lead to increased effectiveness in implementation of CPT, higher rates of use and ultimately more access to clients receiving high-quality and effective treatment of PTSD.

Chapter 6: References

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