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# Recognition and Use of Empirically-Supported Treatments Among Clinicians Treating Clients with Post-Traumatic Stress Disorder

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RECOGNITION AND USE OF EMPIRICALLY-SUPPORTED TREATMENTS  
AMONG CLINICIANS TREATING CLIENTS WITH POST-TRAUMATIC STRESS  
DISORDER

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Bachelor of Arts in Psychology  
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submitted in partial fulfillment of requirements for the degree

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**Abstract**

In order to provide adequate care, it is important for clinicians to be informed about the level of empirical support for various treatment approaches. The present study analyzes data culled from a survey of clinicians who work with PTSD. Respondents were presented with a range of treatments. They were then asked to rate their familiarity with and training in each treatment, their theoretical orientation, their level of experience conducting psychotherapy in general, and their experience with PTSD in particular. Finally, they were asked to categorize each of these treatments as “empirically supported” or “not empirically supported,” and to rate how often they used each treatment. Multivariate GLM was conducted to determine whether familiarity with ESTs, training in ESTs, theoretical orientation, level of experience, or level of experience with PTSD predicted accuracy and use of ESTs. The results indicate that experience with PTSD predicts use of ESTs, that training in ESTs predicts use of ESTs, and that familiarity with ESTs predicts both use of these treatments and accuracy in the categorization task. It may be the case that clinicians who are trained in ESTs use them more often simply because those are the interventions they have been trained to use. The reasons why clinicians who work with PTSD are more likely than their peers to use ESTs, but no more accurate in identifying them, are less clear.

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## CHAPTER I

### INTRODUCTION

When conducted improperly, psychotherapy can fail to help, or even actively harm clients (Kraus et al, 2011). It is thus important to ensure that psychotherapeutic techniques are actually useful, and the best way to ensure this utility is to subject them to rigorous and systematic research. For this reason, psychological research literature increasingly endorses the use of Empirically-Supported Treatments (ESTs) (Chambless & Hollan, 1998; Chambless, Baker, et al. 1998; Chambless & Ollendick, 2001). A treatment protocol that has been demonstrated via clinical trials to lead to improvement is said to be empirically supported (Chambless & Hollan, 1998). Proponents of ESTs hope that by subjecting treatments to systematic scrutiny, they can clearly identify which techniques are useful and which are not. Such a scientific approach to treatment conceptualization is intended to make treatments more effective by emphasizing that which works and eliminating that which does not. There is considerable evidence that many clinicians use treatments without high levels of empirical support when working with a variety of client groups (Von Ranson & Robinson, 2004; Allen et al, 2012; Kolko et al, 2009). There is a paucity of such research, however, related to PTSD. The goal of the present study is to assess whether clinicians treating clients who have PTSD regularly use ESTs, and to determine what factors they consider when making treatment choices.

Gaining popularity in the 1990s, the empirical approach to treatment has its roots in the behaviorist theory of the 1950s and 1960s (Corey, 2013). In response to the largely unprovable tenets of then-dominant psychoanalytic theory, behaviorists attempted to understand psychology strictly through observable behaviors and to form theories based

on objective data (Corey, 2013). This more scientific approach to psychological theory gained ground over the intervening decades and led to the increased emphasis on empirical support for treatments by the 1990s (Myers, 2007).

By this time, researchers were attempting to define what qualifies a treatment as an EST by establishing standards of evidence for both efficacy and effectiveness. In the early 1990s, Division 12 (Clinical Psychology) of the APA established the Task Force on the Promotion and Dissemination of Psychological Procedures (Chambless, Baker, et al, 1998). The purpose of this task force was to establish guidelines for what constitutes an intervention as empirically supported, and to create a list of ESTs. The first report from this task force was published in 1995. In the wake of this and subsequent reports from the Division 12 Task Force, a cadre of researchers attempted to clarify the definition of an EST (Chambless & Hollan, 1998; Chambless, Baker et al, 1998; Chambless & Ollendick, 2001; Seligman, 1995). Since this push for empirical support in the late 1990s, the APA has compiled a list of treatments judged to be ESTs (APA, Division 12, 2013). This list has been, and continues to be, revised and updated as new research is produced (APA, Division 12, 2013).

In the last decade, researchers have sought to determine how many practicing clinicians can correctly identify ESTs (Allen et al, 2012), how many typically use them (Allen et al, 2012; McAlpine et al. 2004; von Ranson & Robison, 2006; Kolko et al, 2009; Simmons et al, 2008,) and how many consider empirical support an important factor in selecting treatments (Staudt & Williams-Hayes, 2011; von Ranson & Robinson, 2006; Aarons, 2004; Addis & Krasnow, 2000, Aschcraft et al, 2011). There have also been a number of efforts to identify, among those who do not use ESTs, what their

objections to these treatments are. The purpose of the present study is to expand on this body of research.

### Clinician accuracy in identifying ESTs

In a recent study of clinician knowledge of ESTs, Allen et al (2012) surveyed 240 practitioners from the United States who work with maltreated children. Among other things, the clinicians were asked to identify ESTs from a list of treatment options. The list was comprised of 15 treatments, 5 of which are recognized as ESTs. Clinicians were, on average, able to correctly identify 1.72 ESTs (SD 1.04). One of the ESTs included on the list, Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT) was significantly more likely to be identified than the other ESTs. When this outlier was removed from the analysis, clinicians were only able to identify a mean of .85 ESTs (SD .95). The results of this study suggest that many clinicians who work with maltreated children are ill-informed about the degree of empirical support for specific treatments.

As of this writing, Allen et al (2012) was the only study available that directly assessed clinicians' accuracy in identifying ESTs. The dearth of research on this topic, as well as the limited scope of the population that Allen et al. examined--clinicians working with maltreated children--strongly suggest that further research with diverse populations would be beneficial.

### Clinician use of ESTs

Much of the extant research on the use of ESTs focuses on abused or mistreated children and on clients with eating disorders. The literature on clinicians' use of ESTs with child trauma victims is especially relevant to the present discussion of EST use with



PTSD in general, but further research on the use of ESTs with PTSD sufferers of all ages is warranted.

#### ESTs and Childhood Trauma

Researchers have also examined the extent to which clinicians report using ESTs. Kolko et al (2009) surveyed a group of 401 practitioners who had attended seminars in TF-CBT for child trauma. Participants were asked to give information about the techniques they most commonly used with children who had experienced sexual abuse. Participants were more likely to report using nondirective interventions than behavioral interventions, although most participants indicated that they believed behavioral techniques contribute to positive outcomes.

Staudt and Williams-Hayes (2011) investigated therapists' attitudes toward ESTs and treatment manuals for child survivors of trauma, therapists' use of these treatments, and their knowledge about them through an online survey of therapists who work with such children. The number of respondents was only 21, a small sample size, but these respondents demonstrated a "generally favorable attitude" to ESTs (Staudt and Williams-Hayes, 2011). The rate of favorable responses was compared to therapists' scores on the knowledge scale. Favorable attitudes were correlated with higher knowledge scores ( $r = .563, p = .01$ ), whereas unfavorable attitudes had an inverse relationship to knowledge scores ( $r = -.648, p = .002$ ). Additionally, all of the respondents ( $n = 21$ ) indicated that they use TF-CBT in their practice. This is an encouraging finding, although it must be stressed again that these results come from a very small sample.

#### ESTs and Eating Disorders

Haas and Clopton (2003), in a survey of 126 psychologists treating clients with eating disorders, found that 43.6 % of participants reported not using an EST, and another 39.5% reported only using one “somewhat.” In contrast, McAlpine et al (2004) found evidence that clinicians working with bulimic clients in southeast Minnesota, northwest Wisconsin, and northern Iowa were much more likely to recommend ESTs and to make them available to clients than earlier studies had indicated. 81.4% of clinicians surveyed indicated that they recommended CBT. McAlpine et al. noted that this is a stark difference from previous studies by Crow et al. (1999), which had found that only 7% of the clients surveyed had undergone CBT, and Mussell et al. (2000), which had found that 78.3% of clinicians surveyed had not been trained in empirically-based, manualized CBT. In a survey of 268 clinicians treating clients with eating disorders, Simmons et al (2008) found that while only “about a third of what can be considered the most highly trained group of practitioners in this field” identified CBT as their theoretical approach, many reported using specific techniques from CBT. For example, about 80% reported “always” or “almost always” using cognitive restructuring. In a survey of 52 clinicians treating clients with eating disorders in the Calgary area, von Ranson and Robinson (2006) found that as many as 59.6% reported “always” using CBT. Specific CBT techniques, such as stimulus control, cognitive restructuring, and relapse prevention were reportedly used at a high rate, ranging from 86.6-92.3% (von Ranson & Robinson, 2006).

#### Clinicians’ Objections to ESTs

The results of these studies indicate that there is a substantial group of clinicians who prefer to use treatments other than ESTs. Researchers have tried to elucidate the reasons for this by canvassing clinician’s opinions, and three main objections seem to

commonly emerge. First, many clinicians believe that the studies used as evidence for the efficacy of ESTs are conducted using samples without comorbidities, in a highly controlled setting. They object that these results do not generalize to their work, because comorbidity is common in clinical practice, and because the environments in which they work lack the control of research settings (Ruscio & Holohan, 2006; Haas & Clopton, 2003; Simmons et al, 2008). This complaint has merit, but, as numerous authors have explained, it is a problem that can be rectified through change to research design and is not a reason to abandon empiricism entirely (Ruscio & Holohan, 2006). Further, in a study currently in press, Bedard-Gilligan et al found that participants in a clinical trial were likely to present with comorbidities. Only 2.5% of the sample ( $n = 5$ ) could be categorized as having “pure PTSD,” meaning that they had no current co-occurring diagnoses, no reported experience of childhood abuse, and no more than one reported traumatic incident. Further analyses showed that rates of comorbidity and trauma exposure were consistent with several previous large-scale studies of PTSD, indicating that samples in clinical trials of PTSD may be more diverse than critics often suggest (Bedard-Gilligan, In press). Another common objection is that ESTs are inflexible, or difficult to adapt to changing situations (Abramowitz, 2006; Persons, 2006). This objection is leveled specifically toward manualized treatments. Abramowitz, for example, argues for the use of functional analysis to determine the efficacy and effectiveness of specific procedures rather than entire treatment programs, an emphasis on “Empirically-Supported Techniques” rather than “Empirically-Supported Treatments” (2006, p. 165). Finally, some commentators suggest that ESTs are too symptom-focused, and do not address “deeper” problems (Wolf, 2006).

## Post-Traumatic Stress Disorder

In the wake of exposure to traumatic incidents, some people develop Post-Traumatic Stress Disorder (PTSD) (DSM-5, 2013). PTSD is often characterized by mental re-experiencing, or “flashbacks” of traumatic events; emotional detachment; acute anxiety; avoidance; and hyperarousal (Foa et al, 2009). The DSM-5 states that symptoms of the disorder may be expressed as “fear-based re-experiencing, emotional and behavioral symptoms;” “anhedonic or dysphoric mood states and negative cognitions;” “dissociative symptoms,” or some combination of these (DSM-5, 2013). These symptoms are chronic and can be debilitating (DSM-V, 2013; Foa et al, 2009; Myers, 2007; Nolen-Hoeksema, 2007; Allen et al, 2012; Kolko et al, 2009). Lifetime prevalence rates of PTSD in the United States is 8.7% (DSM-5, 2013). Because so many people are affected by this disorder, there is a great need for treatment to combat it. For the reasons outlined above, it is important that ESTs are used to treat PTSD.

The total lack of research on the ability to identify ESTs among clinicians who treat PTSD constitutes a major gap in the literature. For this reason, the present study focuses on clinicians who treat clients diagnosed with PTSD. The study is designed to assess what factors predict clinician’s ability to identify ESTs and the rate at which they use ESTs.

Predictor variables examined for a potential relationship with the dependent variables in this study included familiarity with a given treatment, training in a given treatment, theoretical orientation, level of overall experience, and experience with PTSD. Each of these predictor variables was examined for correlations with accuracy and EST use.

**Hypothesis 1: Familiarity with ESTs will predict accuracy in categorizing the empirically supported status of treatments and use of these treatments.**

One explanation for why some clinicians may be inaccurate in their assessments of the level of empirical support for a given treatment is that they are unfamiliar with the treatment in question. This study will examine whether this is the case. It is also possible that self-reported familiarity will not predict accuracy. This would be an interesting potential finding, as it would suggest that some clinicians who report familiarity with a given treatment are not actually well-informed about the research literature on the topic. This possibility also serves to illustrate the distinction between familiarity with a treatment and accuracy in categorizing it. Familiarity, or awareness of a treatment and some general knowledge about it, is not quite the same as a thorough understanding of the research support for the treatment, knowledge necessary to categorize the treatment accurately. The two constructs, familiarity and accuracy, are similar enough that we can expect them to be statistically related, but not so similar as to be indistinguishable and thus unnecessary to include in this analysis. It is also probable that clinicians who report being unfamiliar with various ESTs will be less likely to use ESTs in general. Thus, the relationship between self-reported familiarity and use is also of interest.

**Hypothesis 2: Training in ESTs will predict accuracy in categorizing empirically-supported treatments and the use of those treatments.**

It stands to reason that a lack of training in ESTs would make clinicians less likely to use them. It is also probable that clinicians who have not been trained in a given treatment style will be less likely to have an accurate understanding of the empirically

supported status of that treatment. For these reasons, training in a given treatment will be used as a predictor variable for accuracy as well.

**Hypothesis 3: Clinicians who identify as Cognitive in theoretical orientation will be more accurate than others and more likely to use ESTs.**

**Hypothesis 4: Clinicians who identify as Behavioral in theoretical orientation will be more accurate than others and more likely to use ESTs.**

As outlined above, the emphasis on empiricism in psychotherapy largely grew out of the Behavioral and Cognitive-Behavioral approaches to treatment (Corey, 2013; Myers, 2007). In response to the prominence of psychological theories and therapies that did not lend themselves to scientific scrutiny, psychologists of the cognitive and cognitive-behavioral orientation developed an approach based on the examination of observable, measurable behaviors (Myers, 2007). Although the empiricist paradigm has become the dominant one in academic psychology, not all clinicians incorporate research findings into their practice (Von Ranson & Robinson, 2004; Allen et al, 2012; Kolko et al, 2009.) Clinicians identifying as cognitive or behavioral in theoretical orientation are probably the most likely to value empirical support (Corey, 2013).

**Hypothesis 5: Overall years of experience will have an inverse relationship with accuracy and with EST use.**

**Hypothesis 6: Experience with PTSD will have an inverse relationship with accuracy and EST use.**

The emphasis on empiricism is a relatively recent phenomenon in psychology (Chambless & Hollan, 1998; Chambless, Baker et al, 1998; Chambless & Ollendick,

2001; Seligman, 1995). Clinicians who were trained prior to this time probably graduated from programs that did not place an emphasis on empirically-supported treatments, and may even have been begun practicing before some of the treatments in question were established as empirically supported. There is also some evidence that more experienced clinicians are less open to adopting new treatment strategies than newcomers to the field (Aarons, 2004).

## CHAPTER II

### METHOD

The data analyzed in this study were gathered in a survey conducted in 2011. The survey was authored and conducted by Dr. Lisa Stines Doane, PhD of Cleveland State University and Dr. Dawn Johnson, PhD of the University of Akron. For some questions, participants were presented with a list of categorical options to choose from, for others they indicated their answers on a Likert-type scale, and for still others they were asked to provide a short, typed explanation. The questions were written by the authors of the survey and then reviewed through consultation with other researchers. The initial sample size was 248; however, after eliminating those who did not complete all of the questions necessary for the present analysis, the usable sample size was reduced to 107.

Participants were clinician members of the Association for Behavioral and Cognitive Therapies (ABCT), the International Society for Traumatic Stress Studies (ISTSS), and the APA Division 56. These participants were 64.1% female (n=159) and 35.5% male (n=88). 93.5% of the participants identified as White (n=232), 2.8% (n=7) as Multiracial 1.6% (n=4) as Black/African-American, 0.8% as Asian (n=2), and 0.4% (n=1) as American Indian/Alaskan Native. 1.6% (n=4) indicated that they preferred not to answer. An examination of these demographic variables for correlations with the dependent



variables found no significant relationship. Gender's relationships to accuracy, use, overall experience, and experience with PTSD are shown below.

Table I  
*Demographic Correlations*

	Accuracy	Use	Overall Experience	Experience with PTSD
Gender	$F=.026$ $p=.735$	$F=-.060$ $p=.432$	$F=-.109$ $p=.110$	$F=-.117$ $p=.096$

Participants were contacted via email and completed the questionnaire online via surveymonkey.com. Participation was voluntary. The study was approved by the Cleveland State University IRB.

Item 15 of this survey presented respondents with a series of treatments for use with PTSD and asked them to rate their familiarity with each of these treatments on a 5-point Likert-type scale (1= Not at all familiar, 2= Slightly familiar, 3= Somewhat familiar, 4=Very familiar, and 5= Prefer not to answer). Clinician familiarity with each of the treatments was assessed using this item, excluding responses of prefer not to answer. Item 16 presented respondents with the same set of treatments and asked them to indicate whether or not they had been trained in each. This item was used to assess clinician's training in ESTs. Similarly, theoretical orientation was assessed using item 8, which asked respondents to simply select their theoretical orientation. Level of overall experience was assessed using item 7 of the survey, which asked clinicians how many years they had been practicing. PTSD-specific experience was assessed using item 13, which asked respondents to indicate how many clients with PTSD they see in a typical week. Item 19 presented clinicians with the same list of interventions and asked them to

categorize each as empirically supported or not empirically supported. Clinicians' answers were then compared with the ISTSS's guidelines on ESTs (Foa et al, 2009). The ISTSS is widely recognized as an authority on the treatment of PTSD, and their 2009 publication is the most current and comprehensive guide to the research literature on PTSD treatment available today (Hudson, 2011; Osborne, 2009). For each respondent, the number of interventions categorized in a way that was consistent with the ISTSS's recommendations was expressed as a percentage. Accuracy in identifying ESTs was operationalized as this percentage. Conceptualizing accuracy in this way allowed the variable to encompass both false negatives and false positives. Simply using the raw number of ESTs categorized correctly would not have taken into account false positives - - instances in which respondents categorized non-ESTs as empirically supported -- and overly inclusive respondents would have been misrepresented as accurate. The reverse would have been true if the raw number of non-ESTs categorized correctly was used; overly exclusive respondents would have been favored. For this reason, the percentage of correctly categorized interventions was determined to be the best measure of accuracy. Item 20 presented the same list of interventions and asked respondents to approximate with what percentage of their clients they use each intervention. The extent to which clinicians used ESTs was operationalized as this percentage.

The following treatments were offered for respondents' consideration in the survey: Acceptance and Commitment Therapy (ACT), CBT, Cognitive Processing Therapy (CPT), Dialectical Behavior Therapy (DBT), Emotional Freedom Techniques/Energy Therapy, Eye Movement Desensitization and Reprocessing (EMDR), Narrative Exposure Therapy, Present Centered/Supportive Therapy, Prolonged Exposure,

Stress Inoculation Therapy (SIT), TF-CBT, Virtual Reality Exposure Therapy, and “Other.” In agreement with the APA’s guidelines on ESTs and drawing on literature compiled by the ISTSS, the following treatments were categorized as empirically supported in this study for use with PTSD: CBT, CPT, EMDR, Prolonged Exposure, SIT, and TF-CBT (Foa et al, 2009). EMDR is a somewhat controversial treatment approach. There is no evidence that the eye-movement component of EMDR provides any added benefit to the client, but the cognitive techniques used, while hardly distinguishable from those used in other cognitive approaches such as CBT, have demonstrated efficacy (Foa et al, 2009). For this reason, EMDR was categorized as empirically supported.

### CHAPTER III

#### RESULTS

The possible range of scores for familiarity was 6-24. The actual range of scores found in this dataset was 11-24 ( $m=18.9$ ,  $sd=2.8$ ). The possible range of scores for training was 6-12, as was the actual range obtained ( $m=9.0$ ,  $sd=1.3$ ). The mean number of years of experience was 15.3 ( $sd=11.9$ ), with a range of 0-48 years. As a measure of experience with PTSD, participants indicated seeing a mean of 8.6 clients with PTSD a week ( $sd=9.8$ ) with a range of 0-63.

In terms of theoretical orientation, a 53.2% majority identified as Behavioral or Cognitive Behavioral ( $n=58$ ). 25.7% identified as Eclectic/Integrative/Other ( $n=28$ ), 12.8% identified as psychodynamic ( $n=14$ ), and 8.3% identified as Cognitive ( $n=9$ ). Two of the theoretical orientations available for respondents to endorse, Interpersonal ( $n=3$ ) and Systems ( $n=1$ ), were excluded from the analysis because the groups were too small.

An examination of the metric predictor variables for intercorrelations yielded the following results. Overall experience was correlated with experience with PTSD ( $r=.151$ ,

was unrelated to familiarity ( $r=.063, p=.380$ ), but was correlated with training in ESTs ( $r=.164, p=.022$ ). Finally, familiarity with ESTs was correlated with training in ESTs ( $r=.575, p<.001$ ).

These data were analyzed using Multivariate GLM. The dependent variables -- accuracy and use-- were expressed as a percentage, qualifying them as metric variables. Four of the predictor variables (familiarity with a given treatment, training in a given treatment, level of overall experience, and experience with PTSD) were metric. Theoretical orientation was categorical.

An analysis of the correlations between predictor variables found that familiarity and training were highly intercorrelated ( $r =.575, p <.001$ ). In order to find the unique contribution of either of these variables, follow-up analyses were conducted that excluded first training and then familiarity. In the following sections, the relationships between each of the predictor variables and the set of dependent variables is explained, followed by the relationship between each of the predictor variables and each of the individual dependent variables. Then, two separate versions of the results are presented as follow-up analyses, the first of which excludes training from the list of predictor variables, and the second of which excludes familiarity.

### Initial Results

The initial analysis, which included both training and familiarity, yielded the following results. The set of dependent variables (accuracy and use) was unrelated to overall experience ( $F=1.158, p=.318$ ). This variable explained about 2.3% of the variance in the set of dependent variables (Partial Eta Squared=.023). Experience with PTSD was

related to the set of dependent variables in a positive direction ( $F=4.121, p=.019$ ).

Experience with PTSD explained about 7.6% of the variance in the set of dependent variables (Partial Eta Squared=.076). Training in ESTs was not significantly related to the set of dependent variables ( $F=2.448, p=.092$ ). Were it to be considered in the analysis, training would account for about 4.7% of the variance in the set of dependent variables (Partial Eta Squared=.047). Familiarity with ESTs was not related to the set of dependent variables ( $F=1.713, p=.186$ ). Were it to be considered, this variable would explain about 3.3% of the variance in the set of dependent variables (Partial Eta Squared=.033).

Theoretical orientation was not related to the set of dependent variables ( $F=.383, p=.890$ ). Were it to be considered in the analysis, it would account for about 1.1% of the variance in the set of dependent variables (Partial Eta Squared=.011).

Overall experience was not significantly related to either use of ESTs ( $F=1.410, p=.238$ ), or accuracy ( $F=.842, p=.361$ ). Were it to be considered, overall experience would explain about 1.4% of the variance in use (Partial Eta Squared=.014) and less than 1% of the variance in accuracy (Partial Eta Squared=.008). Experience with PTSD was significantly related to use ( $F=7.671, p=.007$ ) in the positive direction, and explained about 7.1% of the variance in use (Partial Eta Squared=.072). Experience with PTSD was not significantly related to accuracy ( $F=.837, p=.363$ ). Were it to be considered, this variable would explain less than 1% of the variance in accuracy (Partial Eta Squared=.008). Training in ESTs was significantly related to use of ESTs in a positive direction ( $F=4.937, p=.029$ ). Training explained about 4.7% of the variance in EST use (Partial Eta Squared=.047). Training was not significantly related to accuracy ( $F=.032, p=.859$ ). Were it to be considered, training would account for less than 0.1% of the

variance in accuracy (Partial Eta Squared=.000). Familiarity with ESTs was not related to either use ( $F=1.483, p=.226$ ) or accuracy ( $F=2.110, p=.149$ ). Were this variable to be considered, it would explain about 1.4% of the variance in use (Partial Eta Squared=.014) and about 2% of the variance in accuracy (Partial Eta Squared=.020). Finally, theoretical orientation was significantly related to neither use ( $F=.446, p=.720$ ) nor accuracy ( $F=.320, p=.811$ ). Were it to be considered, theoretical orientation would explain about 1.3% of the variance in use (Partial Eta Squared=.013) and about 0.9% of the variance in accuracy (Partial Eta Squared=.009).

In summary, only experience with PTSD emerged as a significant predictor of the set of dependent variables ( $F=4.121, p=.019$ , Partial Eta Squared=.076). Experience with PTSD was also a significant predictor of EST use ( $F=7.671, p=.007$ , Partial Eta Squared=.071). Training in ESTs was the only other predictor of EST use ( $F=4.937, p=.029$ , Partial Eta Squared=.047). No variable emerged as a predictor of accuracy.

#### Follow-up Version 1

The first version of the follow-up analysis, which included familiarity but training, yielded the following results.

Table II

*Follow-Up Version 1*

Predictor Variable	Relationship to Accuracy	Relationship to Use	Relationship to the Combination of DVs
Overall Experience	$F=3.084$ $p=.082$	$F=2.774$ $p=.099$	$F=2.571$ $p=.082$
Theoretical Orientation	$F=1.644$ $p=.184$	$F=.298$ $p=.827$	$F=.950$ $p=.460$
Experience with PTSD	$F=.135$ $p=.714$	$F=9.505$ $p=.003$	$F=4.998$ $p=.009$
Familiarity with ESTs	$F=6.128$ $p=.015$	$F=9.283$ $p=.003$	$F=8.731$ $p<.001$

In summary, experience with PTSD ( $F=4.998$ ,  $p=.009$ , Partial Eta Squared = .092) and familiarity with ESTs ( $F=8.731$ ,  $p<.001$ , Partial Eta Squared = .150) both emerged as positive predictors of the set of dependent variables. Experience with PTSD was also a significant predictor of use ( $F=9.505$ ,  $p=.003$ , Partial Eta Squared = .087) in the positive direction. Familiarity was a positive predictor of both accuracy ( $F=6.128$ ,  $p=.015$ , Partial Eta Squared = .058) and use ( $F=9.283$ ,  $p=.003$ , Partial Eta Squared = .085).

## Follow-Up Version 2

The second version of this analysis, which included training as a predictor variable but not familiarity, yielded the following results.



Table III

*Follow-Up Analysis 2*

Predictor Variable	Relationship to Accuracy	Relationship to Use	Relationship to the Combination of DVs
Overall Experience	F=3.630 p=.060	F=1.221 p=.272	F=2.189 p=.028
Theoretical Orientation	F=1.095 p=.355	F=.689 p=.561	F=.854 p=.530
Experience with PTSD	F=.053 p=.819	F=7.174 p=.009	F=3.698 p=.028
Training in ESTs	F=3.164 p=.078	F=12.621 p=.001	F=8.658 p<.001

In summary, experience with PTSD ( $F=3.698$ ,  $p=.028$ , Partial Eta Squared =.070) and training in ESTs ( $F=8.658$ ,  $p<.001$ , Partial Eta Squared =.149) both emerged as significant positive predictors of the set of dependent variables. Experience with PTSD emerged as a positive predictor of use of ESTs ( $F=7.174$ ,  $p=.009$ , Partial Eta Squared =.067), and training in ESTs emerged as a positive predictor of use of ESTs ( $F=12.621$ ,  $p<.001$ , Partial Eta Squared =.112).

## CHAPTER IV

### DISCUSSION

Hypothesis one predicted that familiarity with ESTs would predict accuracy and use. This was true in the first follow-up version of the analysis, but not in the initial results. Hypothesis two predicted that training in ESTs would predict both accuracy and use. The results, however, indicate that only familiarity predicted accuracy. These results would seem to suggest that training in a certain intervention does not guarantee that a clinician is well-versed in the research literature on that intervention. Hypotheses three and four predicted that clinicians who identified as Cognitive or Behavioral in their theoretical orientation would be more accurate and more likely to use ESTs. This study, however, found no relationship between theoretical orientation and either accuracy or use. Hypothesis five predicted that overall years of experience would have an inverse relationship to accuracy and EST use. In fact, no relationship was found between either of the dependent variables and overall experience. Finally, hypothesis six predicted that experience with PTSD would have an inverse relationship to accuracy and use. However, in the study, no relationship was found between experience with PTSD and accuracy, and experience with PTSD was positively related to use of ESTs. This last finding is

encouraging, as it suggests that those who work most frequently with clients suffering from PTSD are most likely to use ESTs.

The relationships found between the variables in this study suggest some additional conclusions. While training in ESTs did not predict accuracy or use in the initial results, it did predict use in the follow-up analysis. It is likely that clinicians who have been trained in a given treatment style are more inclined to use that treatment. Thus, it stands to reason that clinicians who have been trained in ESTs are more likely to use these treatments, regardless of what the clinician knows about their empirically supported status. This could explain why training is related to use but not accuracy in categorizing interventions as empirically supported. This point illustrates exactly why it is important that more clinicians are trained in the use of ESTs; the best way to increase the use of a treatment in the field is to train more clinicians in that treatment.

The only significant predictor of accuracy to emerge from this study was self-reported familiarity with ESTs, and this relationship only emerged in the follow-up analysis that excluded training as a predictor variable. As research by Allen et al (2012) demonstrates, clinicians' ability to identify ESTs accurately is an area of concern. The present study provides some preliminary evidence that campaigns to increase familiarity with ESTs among clinicians could help to improve accurate understanding of the empirically-supported status of these interventions. However, further research into clinicians' ability to accurately identify ESTs, as well as research into the factors that predict this ability, is needed. Specifically, research into mechanisms to increase familiarity would be helpful. Public awareness campaigns, free seminars, and incorporation of EST instruction into clinician training curricula could all help to increase the workforce's familiarity with

these treatments. Research into which of these strategies are useful and how the process can be made most effective would be useful.

Interestingly, while experience with PTSD predicted greater use of ESTs across all versions of the analyses, it did not predict greater accuracy. It is puzzling that, while clinicians who work intensively with PTSD patients are more likely to use ESTs, they do not appear any more likely than their peers to be able to identify these interventions as empirically supported. Training in ESTs, like experience with PTSD, predicted use (in the follow-up analysis) without predicting accuracy. Additionally, training in ESTs and experience with PTSD were themselves correlated. This would suggest that clinicians who have been trained in ESTs are more likely to work with clients who have PTSD. The failure to link accuracy with these other two variables makes it difficult to understand the reasons for this relationship. Further research of the precise nature of this relationship would be welcome. There are any number of other factors that might influence accuracy, including level of education, region of practice, and region of education. Research into what else predicts accuracy could help shed light on relationships found in this study.

Staudt and Williams-Hayes (2011) found a positive relationship between attitudes toward ESTs and knowledge of ESTs. It stands to reason that clinicians with favorable attitudes toward ESTs would be more likely to use these treatments, although further research would be needed to substantiate this relationship. Thus it would be reasonable to expect to see a relationship between knowledge of ESTs and use of ESTs. The present study assessed self-reported knowledge about ESTs through the construct of familiarity and functional knowledge about ESTs through the construct of accuracy. While no relationship was found between accuracy and use, in the follow-up version of the

analysis, familiarity was found to be related to use. This finding lends some support to the conjecture made above, namely, that there may be a relationship between knowledge of ESTs and use of the same.

Research by Kolko et al (2009), however, finds evidence to the contrary; clinicians in that study reported being more likely to use less empirically-based nondirective interventions despite believing that empirically-supported behavioral interventions can contribute to positive outcomes. These results call into question the supposed relationship between knowledge of empirical research literature and use of ESTs. Further research to clarify the nature of this putative relationship would be useful.

The existing research literature on rates of EST use, as outlined in the introduction, is mixed. While researchers such as Haas and Clopton (2003), Crow et al (1999), and Mussell et al (2000), found evidence that clinicians use ESTs at a relatively low rate, McAlpine et al (2004) and von Ranson and Robinson (2006) found evidence for increasing rates of EST use among clinicians. Simmons et al (2008) found that, while relatively few clinicians identify their theoretical orientation as cognitive-behavioral, the majority reported frequently using techniques from CBT, an approach with a strong base of empirical support. The mixed nature of this literature indicates that there is cause for concern about clinicians' use of ESTs. The results of the present study indicate that experience with PTSD is a predictor of EST use; clinicians who have more experience with PTSD are more likely to use ESTs. In the follow-up analyses, both training and familiarity in ESTs emerged as additional predictors of their use. Future research should examine these relationships further, but these results suggest that increasing clinicians'

opportunities for learning about and training in ESTs would increase the rate of EST use in the field.

Certain limitations of the present study should be noted. Participants were partially drawn from the ABCT, which may have led to an over-representation of clinicians who identify as cognitive or behavioral in the sample. The combined percentage of clinicians in the sample who identified as either Cognitive, Behavioral, or Cognitive-Behavioral was 61.5% (n=67). A sample biased in this way has less generalizability than a more representative sample. Future research may need to include more clinicians of other orientations. Furthermore, because they had not filled out all of the information necessary for the present study, many of the participants had to be excluded from the analysis, limiting the usable sample size to 107. Smaller sample sizes reduce statistical power and generalizability. Additionally, the overwhelming majority of the sample (93.5%) identified as White. A more diverse sample would increase the generalizability of the results.

Finally, there are inherent limitations to a correlational design. In such a study, it is always possible that unaccounted for variables are influencing the results. Gender and race were found to be unrelated to the variables examined in this study, but other, unaccounted for demographic variables could be impacting the results. Another problem endemic to correlational designs is reverse causality. It is possible, for example, to interpret the results as evidence that clinicians who work with PTSD are more likely to adopt the use of ESTs. However, it is just as possible that clinicians who use ESTs are more likely to end up working with PTSD patients. The direction of the causality for any of these correlations is up for debate. Correlational designs do not definitively establish

causal relationships because of the problems posed by causal directions and extraneous variables.

There are significant strengths to this study as well. Although the initially much larger sample size had to be cut to 107, it is worth noting that this is still an adequate sample size and larger than that used in many of the previous studies on EST use. Additionally, the present study's focus on EST knowledge and use among clinicians who work specifically with PTSD meets a need in the existing research literature; a literature review uncovered no previous studies on this topic. Further research is needed, but the present study begins to fill a major gap in the research literature on ESTs.

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