

TRAUMA TREATMENT: THE INFLUENCE OF SOCIAL WORKERS'
KNOWLEDGE, PERCEIVED SELF-EFFICACY, AND USE
OF EVIDENCE-BASED INTERVENTIONS

by

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Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

May 2014

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Acknowledgements

First and foremost, I want to dedicate this dissertation to my wife, Sarah, and to my grandmother, Francisca. My grandmother installed in me the value of education. She taught herself how to read and write when others saw no value in it. She is my inspiration, my muse, for pursuing higher education. My wife, Sarah, is a true gift from God. She is the one who keeps me going and centers me. In Dr. Beth Shelton's class, *Women and Work*, I learned that because of my wife, I have been able to finish this dissertation. Without her support and tolerance, I could have not completed it. This dissertation belongs to her as it belongs to me as well. We both have worked hard through this process. Finally, I want to dedicate this dissertation to all my clients who have taught me the importance of listening and healing.

A special thank you goes to Dr. Beverly Black. She has carried and steered me through this program. I have grown because of her guidance and learned that limitations are boundaries set by giving up and not forcing yourself to move forward when you cannot see possibilities. Thank you, Dr. Black; this is a lifelong lesson!

Finally, I want to acknowledge many professors who have been with me through this process. First, Dr. Donald Granvold, thank you for believing in me! Dr. Regina Aguirre, an inspiration and a supporter. Dr. Randy Basham, for believing in me. Dr. Norman Cobb, for pushing me. Dr. Beth Shelton, for teaching me the importance of women. Dr. Vijayan Pillai, for teaching me to love statistics. And to many more who are not mentioned here. With my warmest heartfelt thank you, I appreciate all your support.

April 07, 2014

Abstract

TRAUMA TREATMENT: THE INFLUENCE OF SOCIAL WORKERS' KNOWLEDGE, PERCEIVED SELF-EFFICACY, AND USE OF EVIDENCE-BASED INTERVENTIONS

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This research report asserts that trauma is pervasive and of those traumatized, 10 to 20 percent develop posttraumatic stress disorder (PTSD). PTSD symptoms do not automatically dissolve, thereby making treatment necessary. However, there is little research regarding social workers' knowledge of trauma and trauma treatment efficacy. Furthermore, there is a gap in the literature specifying social workers' utilization of trauma-focused evidence-based interventions. The aim of this research study was to determine if social workers' level of trauma knowledge and trauma treatment efficacy predicted the use of evidence-based interventions. A cross-sectional design was used to examine social workers' trauma treatment and what influenced their use of evidence-based interventions. All active members of NASW/TX who were licensed master-level social workers (approximately 3,297) in Texas were selected to participate in this study, of which 1007 participated. Survey methods were implemented to collect the data.

Descriptive and multiple logistic regression statistical procedures were used to analyze the data.

The results show that social workers' knowledge of trauma and treatment efficacy predicted their use of evidence-based interventions. Furthermore, the percent of trauma treatment and training best predicted social workers' evidence-based intervention use. Clinical settings also had an influence on social workers' use of evidence-based interventions. The lowest utilization of evidence-based interventions was in counseling/community settings, outpatient/residential treatment center settings, and inpatient settings; the highest utilization was in the VA/Vet center setting and private practice. Social workers with the lowest knowledge of trauma and treatment efficacy were at the counseling/community setting, outpatient/residential treatment center setting, VA/Vet center setting, and inpatient setting. Social workers with the highest knowledge of trauma and treatment efficacy were in private practice. Therefore, the more knowledge of trauma and treatment efficacy a social worker had, the more they reported using an evidence-based trauma-focused intervention, thus predicting their utilization of evidence-based interventions.

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Chapter 1

Introduction and Statement of the Problem

Trauma, a word lost in an avalanche of symbols without a sound. For those who experience it, this word has a profound meaning. It means that the safe ground in which they walked is no longer safe. They have experienced the vile penetration of inhumanity. The experience left them with a sound of agony constantly ringing a tone that pierces the soul. Trauma, generalized to all parts of life, desecrates what once was sacred and tranquil. The horror of sensing metamorphic spirits engulfs the entire being relentlessly. Such is trauma to those who experienced it. It is not a word; it is a symbol of monstrous automatic rumination.

Trauma

Trauma is a psychological or physical wound resulting from combat exposure, crimes, rape, kidnapping, natural disasters or accidents, which causes great distress and disruption in a person's life and leaves long lasting psychological effects (Van der Kolk, 1994). These psychological effects affect the person cognitively, emotionally, and behaviorally and diminish the function and quality of life as the traumatic symptoms increase (Herman, 1997; Van der Kolk, Pelcovitz, Mandel, McFarlane, & Herman, 1996). As traumatic symptoms increase, the perception or capacity to cope decreases. The person begins to lose trust in self, others, and his or her environment and is unable to find resolution to the traumatic effects (Resick & Schnicke, 1992).

Furthermore, trauma affects an individual somatically and neurologically. The message sent through the nervous system is overly activated and incongruent with the

experience the person is having. These incongruent messages at the emotional, cognitive, neurological, and somatic levels activate traumatic symptoms similar to the ones activated during the traumatic event although the person is safe and out of danger. Trauma, thus, is the inability to reconcile experience and the belief system one holds.

Trauma Prevalence

Trauma affects the majority of the population; about 50% to 90% of all adults are victims of trauma in their lifetimes (Breslau, 2009; Friedman, Resick, & Keane, 2007; Vieweg et al., 2006). In the United States, the victimization rate for violent crimes in 2011 was 29.7% (Bureau of Justice Statistics [BJS], 2012). According to the Criminal Victimization 2011 report, those with two or more races (90.8%; excluding Hispanic) have the highest victimization rate (e.g. sexual assault or robbery), followed by American Indian/Alaska Native (58%), Black (37.2%), Hispanic (31.6%), White (28%), and Asian/Native Hawaiian/Other Pacific Islander (13.7%; BJS, 2012). Based on marital status, those who are Separated (99.3%), Never Married (47.2%), and Divorced (47%) have the highest victimization rate, whereas those who are Widowed (4.5%) and Married (14.7%) have the lowest victimization rate. In terms of region, those who live on the West (35.5%) and Midwest (34.1%) region have the highest victimization rates, whereas those who live on the South (24.8%) and Northeast (26.7%) region have the lowest victimization rates. Finally, the highest victimization rates for residence are Urban (37.1%), Rural (26.8%), and Suburban (25.9%), respectively (BJS, 2012). Thus, victimization rates are a good measure of cumulative negative traumatic effects.

The trauma rates in certain regions of the world are even worse than in the United States. Van Dijk and Alvazzi del Frate (2004) has the most comprehensive report using the International Crime Victim Survey conducted in 24 countries and 46 cities, interviewing over 250, 000 individuals. They found that Africa (46%) and Latin America (35%) have the highest crime rates (van Dijk & Alvazzi del Frate, 2004). This rate is expected to be higher because many crimes are not reported to the police due to fear and intimidation. In other regions of the world (Western Europe, Eastern-Central Europe, North America, Australia, and Asia) the crime rate is 27% on average. Asia has the lowest crime rate. However, “In Asia, women are twice as likely as men to be victimized by violence, including sexual violence” (van Dijk & Alvazzi del Frate, 2004, p. 23). Globally, women have the highest rate of sexual assault victimization as compared to men. Finally, of those who are victimized internationally, 40% are likely to be revictimized within the same year at least once (van Dijk & Alvazzi del Frate, 2004).

Populations Impacted by Trauma

Although trauma impacts a diverse population of people, three segments of the population have particularly high rates of trauma. These segments are military personnel, women and children, who are especially vulnerable to experiencing trauma and its devastating effects.

Military

Military personnel and veterans are vulnerable to trauma because of exposure to war (Armistead-Jehle, Johnston, Wade, Ecklund, 2011; Gilbertson et al., 2010; Hassija, Jukupcap, Maguen, & Shipherd, 2012). According to the Department of Veterans Affairs

(VA; 2010), there are 22.7 million veterans. Of these, more than 1.3 million served in multiple wars and 1.6 million have returned from Iraq and Afghanistan. Thus, all military personnel and veterans who have deployed are at risk for psychiatric illness, including traumatic symptoms, because of exposure to war (Department of Defense [DoD], 2010a, 2010c; MacGregor, Han, Dougherty, & Galarneau, 2012; Meagher, 2011; US Census, 2010).

Children

Children in general are vulnerable to trauma because of their developmental stage and lack of self-protective mechanisms (Carrion & Wong, 2012; Hagenaars, Fisch, & Van Minnen, 2011). Children develop the skills and capacity to cope through their experiences and their parents. Therefore, the level of trauma a child experiences is higher than for an adult because a child does not have the coping skills and strategies to overcome adversity. The rate of lifetime exposure to traumatic stressors for young children makes it even more significant, which is 52.5% between the ages of 2 and 5 (Zero to Six, 2010). Furthermore, 78% of children of all ages have experienced more than one trauma (Cloitre et al., 2009; Cook et al., 2003) and the initial average age of trauma exposure is five (National Child Traumatic Stress Network [NCTSN], 2009a).

Children's high rates of trauma are related to their high rates of abuse. Child sexual abuse (CSA) is the most prevalent type of trauma in children. According to the American Academy of Child and Adolescent Psychiatry (AACAP) (2008b), "Child sexual abuse has been reported up to 80,000 times a year, but the number of unreported instances is far greater, because the children are afraid to tell anyone what has happened,

and the legal procedure for validating an episode is difficult” (para. 1). This is complicated by the fact that CSA often takes place by familiar and trusted individuals such as “a parent, step-parent, sibling or other relative; or outside the home, for example, by a friend, neighbor, childcare person, teacher” (Lippert, Cross, Jones, & Walsh, 2010, p. 1). Thus, the exploitive nature of CSA makes children more susceptible to trauma and other developmental or psychiatric problems.

In addition, due to children’s military parents’ trauma or recurrent deployment, military children experience higher traumatic stress. There are approximately 1.9 million children who have experienced a parental deployment in support of OEF (Operation Enduring Freedom) and OIF (Operation Iraqi Freedom; DoD, 2010c; Meagher, 2011). The DoD report (2010c) stated that child neglect increased due to high family stress related to rapid and frequent deployments. Thus, parental deployment and child neglect has increased vicarious trauma in children. This is reflected by the increase in mental health services military children are receiving. For example, Gorman, Eide, and Hisle-Gorman (2010) found that child mental behavioral health visits increased by 11%, behavioral disorder increased by 19%, and stress disorders increased by 18% when parents are deployed.

Women

Although women do not have a higher prevalence of trauma exposure than men, their traumatic experiences are more impactful due to the nature of the traumatic events they most frequently suffer (Breslau & Peterson, 2010; Kobayashi & Mellman, 2012). Women’s trauma often has to do with their experience of CSA, adult sexual assault, or

involvements in intimate partner violence (IPV; Cloitre, Petkova, Wang, & Lu, 2012; Messing, La Flair, Cavanaugh, Kanga, & Campbell, 2012; Robinaugh & McNally, 2011; Tolin & Foa, 2006). One in four girls is sexually abused during childhood (NCTSN, 2009b). About 17.6% of women have experienced rape or attempted rape compared to 3% of men in their life (Office of Justice Programs, 1998). Between 25 and 31 percent of women are victims of domestic violence (Alhabib, Nur, & Jones, 2010; NCTSN, 2009b). More specifically, IPV (851,340) against women results in more than 2 million injuries (National Center for Injury Prevention and Control, 2003; BJS, 2012). Women in the military are at an even higher risk of sexual assault or IPV than the general population of women. Yaeger, Himmelfarb, Cammack, and Mintz (2006) found that 92% of women in the military had experienced at least one trauma event during their lifetimes and 41% of women in the military experienced military sexual assault (MST).

Causes of Trauma

The leading causes of trauma are combat exposure, crimes, rape, kidnapping, natural disasters, and accidents (Javidi & Yadollahie, 2012; Van der Kolk, 1994). These events challenge a person's coping strategy and capacity. Trauma exposes people to their vulnerabilities, thereby increasing their hypervigilance, and thus changing their sense of security and well-being.

Combat Exposure

Combat exposure is a prominent cause of trauma, especially to those who are in the military (86% experience combat exposure; Gilbertson et al., 2010; Hoge et al., 2004; Mitchell, Gallaway, Millikan, & Bell, 2011). This type of trauma is inevitable during

wartime, which the United States has been engaged in since 1991. Combat exposure occurs directly and indirectly. Direct combat exposure is actively engaging the enemy. These engagements do not necessarily have to be physical but psychological and biological as well (i.e. chemical/biological warfare). Indirect combat exposure occurs through hearing about other units being attacked or hearing about their comrades dying in the line of fire (Gade & Wenger, 2011; Pietrzak, Whealin, Stotzer, Goldstein, & Southwick, 2011). Thus, combat exposure in a combat zone is expected and imminent. Therefore, military members in a combat zone are in survival (self-preservation) mode, as the nature of combat is unexpected and life threatening, and prolonged active survival mode increases traumatic symptoms.

Crime

A crime is a violation of a person's property or self. Crimes such as robbery (29%) or aggravated assault (62%) are traumatic to those who experience them (FBI, 2011). The high volume of violent crimes, which are estimated at 5.8 million, demonstrate the number of victims (BJS, 2012). Victims experience insecurity around their environment, as the purpose of a crime is to violate one's rights. These symptoms of insecurity and powerlessness add to other previous traumatic symptoms.

Rape or Sexual Assault

Rape or sexual assault is a forcible sexual act, a prominent traumatic experience that does not only violate the person's body but it also violates his or her sense of self (BJS, 2012; NCTSN, 2009b). The police in the United States in 2011 received approximately 243, 800 (27%) reports of rape or sexual assault (BJS, 2012). However,

this number does not reveal the many unreported rapes. It is estimated that only about 10% of rapes are reported. Sexual assault is considered a traumatic event with severe consequences (Tolin & Foa, 2006). The nature of rape or sexual assault adds to the complexity of the trauma because the victim often knows the perpetrator. This contributes to the severity of the trauma, shattering the beliefs of self, others, and the world.

Kidnapping

Kidnapping is when a person (child, family, acquaintance, and stranger) is taken or detained against his or her will (2% of the US population is kidnapped a year; FBI, 2011). The person loses his or her freedom and is at the will of the captor, traumatizing the individual by the threat of danger to self and family members (Phillips, 2011). Navia and Ossa (2003) found that “kidnapping was as traumatic for families as for actual victims...” especially during captivity (p. 111; Spilman, 2006). Navia and Ossa’s finding is important as kidnapping usually involves children (85-90%) in the US. Kidnapping takes the child from a secured and safe environment to one that is uncertain and unsafe (Navia, & Ossa, 2003). Thus, kidnapping is a chronic trauma due to the nature of the unknown (not knowing when the person will be released) and the feeling of powerlessness (Herman, 1997).

Natural Disasters

Natural disasters are traumatic events that endanger people and property through natural causes (e.g. earthquakes, hurricanes, tornadoes, or wildfires). Natural disasters often displace individuals resulting in adjustment issues and complicated grief due to the

loss of property or a person. The National Weather Service (NWS) in 2011 reported 8,830 people injured from natural disasters, and the American Red Cross in 2011 reported responding to nearly 70, 000 disasters, affecting millions of people. The catastrophic effect of natural disasters is not only physical but psychological as well. Such traumatic events create a sense of powerlessness and helplessness that is difficult to overcome as nature is unpredictable.

Accidents

Accidents (traffic or chemical) are unexpected events resulting in harm to self or others. In 2009, there were more than 2.3 million adult drivers resulting in emergency room treatment due to car accidents (CDC, 2011). Accidents, such as motor vehicle accidents, are traumatic not just to the one who experienced the accident but to the one who caused the accident as well (CDC, 2011). Thus, there is a dual mental health cost traumatizing both individuals.

Consequences of Trauma

Trauma perturbs many and there are severe consequences for the individual experiencing trauma, their families, and society as a whole. Posttraumatic stress is the most common result of trauma.

Posttraumatic Stress Disorder

Although up to 90% of people experience traumatic events and recover on their own, many others (10-20%) do not recover. For example, about 50% of females who suffer trauma do not recover spontaneously (Breslau, 2009; Lilly, Pole, Best, Metzler, & Marmar, 2009; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). This means that

treatment is necessary. However, without treatment, the trauma symptoms often increase, generalize, and solidify. Once a person's symptoms persist, they will not dissolve without treatment.

Posttraumatic stress disorder (PTSD) is the result of trauma maladaptation (Littleton, Axsom, & Grills-Tauechel, 2011), especially prolonged and repeated trauma (Van der Kolk, 1996; Van der Hart, Steele, Boon, & Brown, 1993). PTSD is the diagnosis given to a person who has experienced a traumatic event a month after the event and continues to experience the symptoms experienced during the trauma. These traumatic symptoms of anxiety, helplessness, and powerlessness shock the nervous system to trigger and create a stimulus response cue. Consequently, PTSD is the inability to integrate traumatic experiences and experiencing symptoms from the traumatic event. Studies have concluded that if the trauma symptoms of PTSD continue after three months, the person will most likely have long lasting PTSD symptoms (Blanchard et al., 1996; Galea et al., 2002; Riggs, Rothbaum, & Foa, 1995; Rothbaum et al., 1992). Of those in the general population who are exposed to trauma, 10% to 20% develop PTSD (Norris & Slone, 2007). The number of people with PTSD is estimated at 8% and 9% (Al-Saffar & Borga, 2005; Norris & Slone, 2007); for those in active military and veterans, it is estimated that 14% to 16% experience PTSD (Bogdanova & Verfaellie, 2012; Hoge et al., 2004; Kok, Herrell, Thomas, & Hoge, 2012; Richardson & Acierno, 2010).

Individual

Traumatic events often have devastating consequences on people's lives. At the individual level, the person has to wrestle with the trauma symptoms and try to cope. However, the problem permeates to the family and societal system. This often has to do with the type of trauma and its severity.

The traumatic events individuals experience during childhood have significant and severe consequences (Brand, Schechter, Hammen, Le Brocque, & Brennan, 2011; Dimitrova et al., 2010; Henry, Sloane, & Black-Pond, 2007; Schore, 2001). Childhood trauma can account for 32.4% of adult psychiatric disorders in adults (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). A 45-year prospective epidemiological study by Clark, Caldwell, Power, and Stansfeld (2010) found that "childhood adversities were associated with adolescent and early adulthood psychopathology with some associations persisting to mid-life" (p. 391). Childhood trauma also increases the risk of comorbid disorders. Hovens et al. (2010) found that a "...history of childhood trauma is associated with a higher risk of anxiety and depressive disorders in adulthood and with an increasing order from anxiety to depressive to comorbid anxiety and depressive disorders" (p. 71). Along these same lines, Noll-Hussong et al. (2010) found that individuals with a history of sexual abuse were more likely to have increased "autonomous responses to emotionally negative stimuli" (p. 486). These increased responses indicate that the individuals have more difficulty with processing and regulating emotions (Van der Kolk, 2002). Conversely, those with no traumatic experiences can be expected to develop a positive sense of self, effective

coping skills, and adaptive interpersonal skills (Atwool, 2006; Coyl, Newland, & Freeman, 2010).

In addition, sexual trauma specifically is likely to increase the chances of an individual developing PTSD, especially in women (Breslau & Peterson, 2010; Coughle, Resnick, & Kilpatrick, 2009). According to McCutcheon et al. (2010), “sexual trauma is a strong predictor of PTSD in women” and “that earlier age at trauma is associated with additional risk” (pp. 813-814; Messing et al., 2012). Women military sexual assault (MST) can account for 60% of PTSD in women; and sexual assault is reported as the most distressing trauma (Maguen et al., 2012; Middleton & Craig, 2012). Forman-Hoffman, Mengeling, Booth, Torner, and Sadler (2012) found that women veterans who had sexual trauma while in the service had stronger association to eating disorders than childhood sexual abuse (CSA). Similarly, Maguen, Luxton, Skopp, and Madden (2012) found that military sexual abuse was a significant predictor of depression and PTSD symptoms. Furthermore, Nayback-Beebe and Yoder (2011) found that lack of social support contributed to female service members’ depression symptoms.

Individuals who served in the military are prone to suffer severe consequences (Cesur, Sabia, & Tekin, 2013; Van Wingen, Geuze, Vermetten, & Fernandez, 2012). Their trauma is related to time spent in combat, which ranges from 31% to 86% (Iraq having the highest enemy contact; Hoge et al., 2004; Hoge, Auchterlonie, & Milliken 2006; Wolfe et al., 2005; Wright, Cabrera, Eckford, Adler, & Bliese 2012). Combat experience can specifically account for TBI (traumatic brain injury) and PTSD (DoD, 2010b; Dolan et al., 2012; Stein & McAllister, 2009; Wilk, Herrell, Wynn, Riviere, &

Hoge, 2012). TBI is the most common physical injury with military members who served in Iraq and Afghanistan (19.5%; Scheibel et al., 2012; Tanielian & Jaycox, 2008). TBI is also associated with an increase of PTSD and its severity. For example, of those with TBI, 43.9% met PTSD criteria (Hoge et al., 2008; Hoge, Terhakopian, Castro, Messer, & Engel, 2007). In addition, veterans with PTSD and TBI experience more arrests after deployment. Elbogen et al. (2012) found that hyperarousal and irritability are attributed to these arrests. TBI and PTSD are also associated with increased risk of suicide (Barnes, Walter, & Chard, 2012; Bell & Nye, 2007; Juris'ic' & Marusic, 2009; Pukay-Martin et al., 2012). Maguen et al. (2011) found that suicidal thinking in OIF veterans was mediated by depression and PTSD symptoms (Connorton, Perry, Hemenway, & Miller, 2011; Marshall et al., 2012). According to the DoD report (2010c), 25% of veterans account for the US suicide population (11.3%).

Family

As an individual is affected, the family system is affected as well. The family often tries to help the individual but does not have the resources on how to help. Furthermore, the family suffers the consequences of the individual traumatized vicariously through seeing their loved one suffer from the traumatic symptoms. Thus, military personnel and veterans, children, and women intersect at the family system. Trauma disrupts the function of the family and creates an imbalance stressing the family system (Gibbs, Clinton-Sherrod, & Johnson, 2012). This in effect develops a vicious cycle of vicarious trauma and retraumatization. For example, marital relationships suffer as the stress level in the family system increases (Mansfield et al., 2010; Ponder, Aguirre,

Smith-Osborne, & Granvold, 2012). Another example is IPV in military families, which has increased with the increase of deployment and combat exposure (Gerlock, Grimesey, Pisciotta, & Harel, 2011; Monson, Taft, & Fredman, 2009; Taft et al., 2007). The hyperarousal, avoidance, and numbing symptoms of PTSD are primarily attributed to the IPV (Dekel & Monson, 2010; Van Voorhees et al., 2012). In addition, the increase of irritability that comes along with these PTSD symptoms increases the chances of IPV (Lambert, Engh, Hasbun, & Holzer, 2012). Therefore, the traumatic experiences the individual suffers compound the family's vulnerability to trauma.

Society

The interaction between the individual and family system results costing society. Thus, the economic cost related to the causes of trauma is extremely high. Natural disasters cost over \$23.9 billion (NWS, 2011). Motor vehicle accidents cost exceeds \$99 billion a year (CDC, 2010). IPV cost from \$4 billion to \$7.6 billion in the US for ages 18 and older each year (National Center for Injury Prevention and Control, 2003). The cost of child maltreatment is \$124 billion a year (CDC, 2012). In 2005, the total cost of mental health treatment for the US population was estimated to be at \$132 billion and the cost is expected to rise above the health care cost, which is over \$732.2 billion (Centers for Medicare & Medicaid Services [CMS], 2012; SAMHSA, 2012).

Obstacles to Treatment of Trauma and PTSD

Many who suffer from trauma go untreated. Limited resources and treatment stigma are some of the reasons (Krupnick & Melnikoff, 2012; Wang, Berglund, Olfcon,

& Kessler, 2004). However, the lack of trauma-trained therapists, including social workers contributes to this problem (Courtois & Gold, 2009).

Limited Resources

Based on the number of trauma-trained therapists and available services, the resources for individuals with trauma are limited. For example, many agencies have a waiting list. This list is based on the lack of available trained therapists. Furthermore, resources are limited due to the nature of trauma treatment. Trauma treatment takes time. Most interventions are typically designed on a 12 to 24 session period. However, with complex trauma, the first step is stabilization and this could take from 6 to 12 sessions, limiting the number of clients a therapist can treat. Thus, resources become scarce and individuals go untreated as they wait for services. Another factor is location of resources. Rural areas have minimal resources and less likely to have trauma-trained therapists (Robinson et al., 2012). The cost for training in a trauma intervention ranges from \$1,500 to \$10,000 (Beck Institute for Cognitive Behavior Therapy; EMDR Institute, Inc., 2011; Intensive Trauma Therapy, Inc., 2010). Thus, the cost of training limits the number of trauma-trained therapists.

Treatment Stigma

Some people do not easily accept treatment for trauma. This makes stabilization more difficult. Treatment stigma often has to do with the cultural belief that a person receiving psychological services is mentally ill (Corrigan, 2004; Elkington et al., 2012; Kim, Britt, Klocko, Riviere, & Adler, 2011; Link & Phelan, 2001). This leads traumatized individuals to feel ashamed, weak, devalued, and distrustful of the medical

system (Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001; Robinson et al., 2012). Those in the mental health field recognize that psychological treatment is equally important as physical illness treatment. However, the label mentally ill carries powerful connotations that lead to higher stigmatization regarding psychological treatment compared to physical treatment (Link & Phelan, 2001). This might be the reason why people wait approximately 11 years from the onset of the trauma to seek psychological treatment (Wang, Berglund, Olfcon, & Kessler, 2004; Lu, Carlson, Duckart, & Dobscha, 2012). People rarely seek treatment immediately after the traumatic event. More often, traumatized individuals seek treatment after their symptoms debilitate them to the point that they cannot function without treatment (Kessler et al., 2001; Regier et al., 1993).

Another issue relates to treatment adherence. Traumatized clients often terminate their treatment too soon or do not follow through treatment expectations (i.e. not completing homework or taking medication; Shrivastava, Johnston, & Bureau, 2012). In addition, clients who have a negative experience with a therapist might be less likely to seek future treatment. In Kim et al.'s (2011) study, those who had negative attitude toward treatment were less likely to seek treatment even if they perceived they had a psychological problem. Thus, treatment avoidance is related to preserving one's self-image and minimizing psychological treatment stigma.

Insufficient Trauma-Trained Therapists

Trauma treatment requires specialized training (Bussey, 2008; Courtois, 2002; Courtois, & Gold, 2009). Clark et al. (2012) states, "Persons afflicted with post-traumatic stress disorder (PTSD) and co-occurring disorders require specialized assessment,

treatment planning, and interventions to increase the probability of positive outcomes” (p. 353). Sprang, Craig, and Clark, (2008) investigated practitioners’ interventions with trauma and found that 65% of practitioners had no specific trauma treatment training. They also found that training predicted practitioners’ use of evidence-based practices (EBPs); and that social workers were more likely to use non-evidence based practice to treat trauma than psychologists. In a related study, Becker, Zayfert, and Anderson (2004) found 27% of psychologists trained in PE (Prolonged Exposure) and only 9% use PE with PTSD clients, of whom only 8% were trained in their graduate school. However, the lack of specialized training might be related to practitioners’ practice attitude. Clark et al. (2012) investigated attitude toward EBP patterns and found that most practitioners prefer “...relational support techniques and peer consultation rather than EBPs...” and that most of them “did not use EBPs for trauma assessment and treatment approaches, but instead, utilized generalist approaches” (p. 356). Therefore, clients with PTSD may not receive treatment from the most competent therapists because of their lack of knowledge of trauma and lack of trauma treatment efficacy.

Purpose of the Study

This study examines social workers’ knowledge of trauma and trauma treatment efficacy to treat clients with trauma. It is likely that social workers will provide services to clients who have experienced trauma (Simmons & DeCoster, 2007). Social workers will work with those experiencing trauma in numerous settings including mental health facilities, hospitals, prisons, private practices, and shelters for battered women. And, of course, social workers will be working in large numbers with veterans (Yarvis, 2011).

According to the Association of VA Social Workers, there are over 9,500 social workers working at the VA. Thus, it is critical for social workers to have higher knowledge of trauma and perceived self-efficacy to treat effectively clients with posttraumatic symptoms.

Karl Menninger (1930) stated it well regarding the social workers' professional responsibility. He stated, "...the technically trained person has enormous advantages over the naïve psychotherapist. For one thing, he knows what not to do, and what not to say" (p. 369). This is at the heart of social workers' ethical responsibility to clients. The social workers' ethical standard responsibility is to provide the best services available with competence. This implies that the social worker is informed of new methodologies and interventions to treat their clients (Witkin & Harrison, 2001).

Research is needed to determine the degree to which social workers are trained in trauma treatment. This study specifically examines how social workers' trauma knowledge and trauma treatment efficacy influences social workers' use of trauma-focused interventions in working with clients who experience trauma (posttraumatic stress). The study will provide information about social workers' training on interventions that focus on trauma. This information can guide the profession and social work education to better prepare its practitioners and students to work with clients experiencing trauma.

Chapter 2

Review of the Literature

In this literature review, I discuss PTSD, practitioners' knowledge of trauma treatment, and social workers' self-efficacy and trauma treatment. The complexity of trauma and the diagnosis of PTSD have a vast history that often is neglected. In order to provide a broader perspective about PTSD and to show the complexity of trauma and PTSD, a brief history of PTSD is given along with the etiology of trauma and the response people usually have to traumatic experiences including the treatment of PTSD. After reviewing PTSD and trauma, the next section focuses on practitioners' knowledge base about trauma and trauma treatment. Then, I discuss social workers' trauma treatment efficacy. I conclude with a discussion of PTSD, social workers' training and their self-efficacy.

Posttraumatic Stress Disorder

As discussed in the introductory chapter, untreated trauma leads to PTSD. PTSD accounts for the most severe prolonged symptoms of trauma. These symptoms do not only affect the person socially or interpersonally, but neuropsychobiologically as well.

PTSD and a Brief History

Currently, diagnosis of PTSD is guided by the *Diagnostic and Statistical Manual for Mental Disorders*, Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013), which states that an adult, adolescent, and a child older than 6 years must have been exposed to a traumatic event in which the following were present: the individual experienced, witnessed, or learned the traumatic event occurred to a close family member

or close friend, or experienced repeated or extreme exposure to the traumatic event that involved actual or threatened death, serious injury, or sexual violence (p. 271). In addition to the above criteria, the trauma victim must also manifest certain symptoms for longer than one month: reexperiencing (intrusive memories or dissociative reactions), avoidance/emotional numbing, and hyperarousal.

PTSD came to public attention during World War I as “shell-shock” resulting from the effects of bombs and as “traumatic neurosis” (Van der Kolk, 2007; Weiss, 2004). However, “shell-shock” was often viewed as a sign of cowardice instead of as a psychological problem (Weiss, 2004). In part, doctors viewed shell-shock as cowardice because they could not distinguish between shell-shock and cowardice (Van der Kolk, 2007). Before the modern understanding of shell-shock, Jean-Martin Charcot, the French neurologist in mid 1800s, studied hysteria, primarily known as PTSD today (Herman, 1997; Van der Kolk, 2007). Pierre Janet and Sigmund Freud both studied under Charcot. Janet proposed that due to “vehement emotions” people who experience trauma could not integrate their memories of past experiences (Heim & Buhler, 2006; Meares, 2003; Van der Kolk, 1994, 2002, 2007). These “vehement emotions,” according to Janet (1925), prevented the person from developing meanings that allows a person to cope with future challenges. He further stated that, due to the power of the emotions, people dissociate and lose voluntary control (Bob, 2003; Crabtree, 2003; Heim & Buhler, 2006; Van der Kolk, 2007; Van der Hart, & Horst, 1989). According to Janet, the traumatic response shocks the system in such a way that the person is unable to synthesize his or her memory (Buhler & Heim, 2001; Ogden, Minton, & Pain, 2006; Van der Hart, Brown, & Van der

Kolk, 1989). On the other hand, Freud proposed that people develop “hysteria” because they are fixated in the trauma (Van der Kolk, 2007). Freud asserted that hysteria is not due to the lack of traumatic memory integration, as Janet had proposed, but that it was due to an active repression of the oedipal crisis (Van der Kolk, 2007). Abram Kardiner (1941), who studied under Freud during World War I, came closer to how we understand PTSD now. He stated:

The subject acts as if the original traumatic situation was still in existence and engages in protective devices which failed on the original occasion. This means in effect that his conception of the outer world and his conception of himself have been permanently altered. (Kardiner, 1941, p. 87)

Kardiner’s understanding of trauma seems to be more aligned with Janet’s assertion of trauma. Janet and Kardiner both asserted the importance of understanding trauma at the neurological level.

It was not until 1980 the American Psychiatric Association, under *Diagnostic and Statistical Manual of Mental Disorders*, third edition (DSM-III) formally recognized PTSD as a disorder (Brewin, 2003; Palm, Strong, & MacPherson, 2009; Yehuda & McFarlane, 1995). The recognition of PTSD under DSM-III, of course, was a difficult task. As the diagnosis for PTSD did not exist prior to 1980, little research had been conducted. The opposition to the diagnosis was due to the belief that it would pathologize people. However, there was enough support due to the benefits of receiving a PTSD diagnosis. According to Brewin (2003):

Critics were well aware that changes in the DSM were in part a response to lobbying on the part of Vietnam veterans and their clinicians, who described a syndrome that did not fit neatly into any existing category. Recognition of this disorder would have profound implications for both psychiatric treatment veterans might expect from the Veterans Administration and also for their entitlement to an award for service-connected disability. (p. 11)

Brewin (2003) further stated that “other groups backing the new diagnosis included representatives of battered women, who also had a strong motivation to promote the recognition of hidden suffering and disability brought about by traumatic experiences” (pp. 11-12). The motivation for this group stemmed from the reality of marital sexual abuse—a husband could rape his wife without any legal repercussion; prior to 1980, there were no laws against a husband raping his wife (Friedman et al., 2007; Lemon, Hoffman, Snyder, McIntyre, & Ferraino, 2000; Sparr & Pitman, 2007). Clinicians began to recognize that women who had been raped showed similar posttraumatic stress symptoms to those who experienced other traumatic events. Clinicians described this as “rape trauma syndrome.” Gradually, the recognition of PTSD broadened the definition of trauma to include “Victims of war, oppression, child abuse, marital violence, robbery, natural disaster or disaster of human origin, life threatening accidents, and other overwhelming events” (Brewin, 2003, p 1; Al-Saffar & Borga, 2005). Thus, the diagnosis in effect recognized the impact of traumatic exposure and the dysfunction brought to a person’s cognition, emotion, behavior, and brain (Friedman et al., 2007; Schnurr, 2010).

PTSD Stress Reaction

The trauma aftereffects activate the stress response system, the autonomic nervous system. PTSD symptoms do not usually dissolve because the autonomic system is dysregulated. The response system activity leads the person to experience emotional distress, which transmutes the person's perception to perceive the traumatic event in the present rather than in the past when it occurred. Van der Kolk (1994) explains that PTSD creates a generalized hyperarousal response to stimuli. This prompts the autonomic response system in people with PTSD to lose the capacity to modulate their affect because they experience the physiological responses of the trauma (Blair et al., 2007; Koenigs & Grafman, 2009; Ochsner, Bunge, Gross, & Gabrieli, 2002; Van der Kolk, 1994). The result is an increased feeling of helplessness and lack of control, thereby, making it difficult for the person to overcome the overwhelming feelings of the traumatic event (Southwick, Ozbay, Charney & McEwen, 2008; Van der Kolk, 1994, 2002).

The more one is exposed to trauma and the longer these symptoms linger, the more severe the traumatic symptoms become (Allen, 1995; Koopman et al., 2005; Van der Kolk, 1994; Van der Kolk, Pelcovitz, Mandel, McFarlane, & Herman, 1996). These events reinforce traumatic triggers from repetitive traumatization (due to maintaining the limbic system dysregulated). According to Shapiro (2001), "Due to the imbalance, the information-processing system is unable to function optimally and the information acquired at the time of the event, including images, sounds, affect, and physical sensations, is maintained neurologically in its disturbing state" (p. 31; Heim & Buhler, 2006; Solomon & Heide, 2005; Talwar, 2007). The accumulation of these negative

experiences pile-up (Breslau, 2009) and create high levels of fear and anxiety, especially if these experiences are maladapted in the person's schema. Thus, triggers are formed and reactivated through cues, i.e. stimuli response (Brewin, Gregory, Lipton, & Burgess, 2010; Ehlers, Mauchnik, & Handley, in press; Iversen, Kupfermann, & Kandel, 2000; Michael & Ehlers, 2007; Pearson, Ross, & Webster, 2012), and the autonomic nervous system becomes dysregulated, which makes it more difficult for the person to recover from traumatic experiences (Schore, 2001, 2002; Schore & Schore, 2008).

PTSD usually affects people's biological and psychological systems (Wilson, 2004). The biological system "refers to the neurophysiological substrates that are innate, preprogrammed capacities of the organism" (Wilson, 2004, p. 8). These capacities are the instinctual ones. The body automatically reacts or functions without the person's consciousness. For example, a person does not consciously decide the rate of his or her heart, to activate the sweat glands to increase perspiration, or to breathe. This is an automatic response as a function of the autonomic nervous system, which controls the activation of the fight-or-flight response system (Falconer et al., 2008; Iversen, Iversen, & Saper, 2000; Schore, 2002; Storm et al., 2002; Van der Kolk, 2006; Yehuda & LeDoux, 2007). The psychological system refers to the process that "involve[s] perception, memory, cognition, learning, personality processes, and the self-structure" (Wilson, 2004, p. 8). Cognitive theories postulate that "core beliefs about [self], others, and the world...prior to experiencing a traumatic event and the alterations of these core beliefs" are what determine the long-term effects of the trauma (Moore, Zoellner, & Bittinger, 2004, p.130). For example, childhood trauma disrupts healthy development,

which then negatively affects a child's ability to learn healthy coping strategies to modulate and utilize emotions effectively (Perry, 2002; Van der Kolk, 2002; Van der Kolk & Fisler, 1995). The disruption of these two systems (psychological and biological) maintains and prolongs the effects of trauma.

PTSD Predictors

Two PTSD predictors are identified in the literature: dissociation and acute stress disorder (ASD). These predictors are components of PTSD diagnostic criteria; diagnosis precedence is based on duration of symptoms. That is, diagnostic criteria are based on onset of symptoms, age (for some diagnoses), condition, and symptom duration.

Dissociation

Dissociation occurs when a person dissociates during the traumatic experience (Birmes et al., 2001; Feeny & Danielson, 2004; Ursano & Fullerton, 1999; Wolf et al., 2012). Dissociation is the inability to think about the past without losing awareness of the present surroundings (Van der Hart, Nijenhuis, & Solomon 2010). The lack of effective integration of the traumatic experience leads to memory fragmentation, which leads to dissociative states (Van der Hart, Steele, Boon, & Brown, 1993). These dissociative states are the fragmented memory of the traumatic experience (Buck, Kindt, Van den hout, Steens, & Linders, 2006). Thus, dissociation is most strongly associated with developing PTSD (Maia et al., 2011; Vasquez et al., 2012; Vogt, King, & King, 2007). Therefore, dissociation is the first PTSD predictor because the traumatic memory is not integrated and dissociation maintains those traumatic symptoms in the original state (traumatic and without meaning).

Acute Stress Disorder

The second predictor of PTSD is acute stress disorder (ASD). This predictor is related to dissociation because a person needs to have experienced dissociation during the trauma to meet diagnostic criteria of ASD (Bryant, 2011). The prevalence of ASD ranges from 7% to 28%; and it is a better predictor for PTSD than any other psychiatric disorder (Bryant, Creamer, O'Donnell, Silove, & McFarlane 2012; Bryant, Friedman, Spiegel, Ursano, & Strain, 2011). In order for a person to be diagnosed with this disorder, the person has to have the symptoms of re-experiencing, avoidance, increased arousal, and dissociation (Bryant, 2004, 2007; DSM-IV-TR, 2000; Hansen, Armour, & Elklit, 2012; McCarthy, Ashley, Lee, & Anderson, 2012; Wilson, 2004). Furthermore, ASD diagnosis can be given two days after a traumatic event. If the person's maladjustment to the traumatic experience continues after four weeks, it becomes a PTSD diagnosis. In order to prevent ASD from becoming PTSD, immediate treatment is necessary (Nash & Watson, 2012). However, some clients do not initially develop ASD, and thus, seek treatment years after the traumatic event (Bryant, Creamer, O'Donnell, Silove, & McFarlane, 2012; Kassam-Adams & Winston, 2004; Yehuda & Wong, 2007).

Neuroscience of PTSD

The neuroscience field is vast and complex. Much of the latest neuroscience understanding is due to the technological advances that allow scientists to study the brain (Bower, 2005; Nyberg & Cabeza, 2005). Neuroimaging can now show how PTSD affects the brain (Hayes et al., 2011; St. Jacques, Botzung, Miles, & Rubin, 2011; Van der Kolk,

1994, 2002). In this section, I first discuss how PTSD affects the neural structure.

Subsequently, I discuss how PTSD affects memory.

Neural structure and PTSD

The primary regions of the brain affected by PTSD are the medial prefrontal cortex, the left anterior cingulate cortex, the thalamus, the medial temporal and hippocampal region, and the amygdala. Although these are the major areas of the brain affected by PTSD, research is still in its infancy. Furthermore, due to the lack of testing power and technology sophistication, it is impossible to isolate neural activation—no single cause and effect can be determined, only possible associations (Nyberg & Cabeza, 2005).

The medial prefrontal cortex is the center for higher cognitive function. It is involved in attention shifting of perceptual stimuli. It also helps with memory activity related to the past and long-term decisions for the future, which helps with suppressing activation of and interference from the amygdala and processing information rationally (Lieberman et al., 2007; Neumeister, Henry, & Krystal, 2007; Poldrack et al., 1999; St. Jacques et al., 2011; Yaoi, Osaka, & Osaka, 2009). In people with PTSD, the medial prefrontal cortex fails to activate PTSD symptoms because the amygdala is excessively activated (Carrion, Garrett, Menon, Weems, & Reiss, 2008; Goldstein et al., 2007). Thus, people experience behavioral dysregulation due to the PTSD symptoms and the prefrontal cortex is not activated to modulate the behavior (Beer, John, Scabini, & Knight, 2006; Goldstein et al., 2007; New et al., 2009).

The anterior cingulate cortex, which is in the medial frontal lobe, is involved in regulating the hypothalamic-pituitary-adrenal (HPA) axis that integrates emotion and cognition and is involved in regulating the autonomic and experiential aspects of emotion. Moreover, it helps with regulating physiological processes as well, e.g. blood pressure and heart rate. The left anterior cingulate cortex can fail to activate with PTSD (Dickie, Brunet, Akerib, & Armony, 2011). This might indicate that the HPA axis has an increased response sensitivity to stress, i.e. a hyper-responsiveness due to PTSD symptoms (in defensive mode), and over-activity in the amygdala.

The thalamus is involved in sensory perception (somatosensory, auditory, and visual sensory) and motor function regulation as part of the limbic system. It is responsible for relaying “sensory information to the limbic system and neocortex” in order to integrate sensory information to the memory network (Ogden et al., 2006; p. 140; Watanabe & Funahashi, 2012). According to Ogden et al. (2006), “Thalamic dysfunction may therefore underlie PTSD flashbacks—traumatic memories that are often experienced as timeless, vivid sensory fragments of the original experience” (p. 141). Another effect of thalamic regulatory dysfunction with PTSD is the disruption of the sleep and awake states, which prevent people from processing traumatic memories.

The medial temporal and hippocampal regions help with learning and memory, which plays a role in consolidating short-term into long term memory (McKenzie & Eichenbaum, 2011; Squire, Zola-Morgan, & Clark, 2007; Sweatt, 2004; Wamsley & Antrobus, 2009; Wang & Morris, 2010; Wierzyński, Lubenov, Gu, & Siapas, 2009; Zola & Squire, 2005). The hippocampus is severely affected by PTSD (more is discussed in the next

section; Van Wingen, Geuze, Vermetten, & Fernandez, 2012). This is important as memory retrieval responding to stimuli needs to be placed in context, and PTSD distorts contextualization.

The amygdala is responsible for regulating fear, anxiety, and emotions (Dèbie, Bush, LeDoux, 2011; Markowitsch, 2005; Zola & Squire, 2005). The amygdala is excessively activated with PTSD. This activation prevents processing the information about the traumatic experience through the prefrontal cortex, allowing fear conditioning of stimuli to govern the person's response, even if the trauma experience occurred years ago (Friedman et al., 2007; Neumeister, Henry, & Krystal, 2007; Mirzaei, Gelpi, Rodrigues, Knoll, & Guitierrez-Lobos, 2005). Richardson et al. (2009) investigated PTSD in a single-case fMRI (functional magnetic resonance imaging) study with a therapist, and found that the trauma memory activated the thalamus and amygdala, which "led the prefrontal cortex to go off-line in response to aversive defense areas of midbrain" (p. 20; McEwen, Eiland, Hunter, & Miller, 2012). When the prefrontal cortex goes "off-line," this affects the trauma victim's ability to process the trauma memory rationally and divert attention from the stimuli that trigger the memory. According to Southwick et al. (2008), "When an event is perceived as threatening, associated behavioral and physiological responses are determined by processes in specific brain structures. Stress alters the chemistry of the brain and can also effect changes in brain circuitry" (p. 95). This affects how the person is able to process the trauma in a rational manner through the prefrontal cortex.

Memory and PTSD

Memory is a topic that has been widely studied as it relates to information processing, which PTSD affects (Siegel, 2002; Stickgold, 2002, 2008; Tulving & Craik, 2005). Information processing has three main stages in the formation and retrieval of information: 1) *encoding*—the process of receiving and processing information (initiated through cortices), 2) *storage*—the creation of a long-term record of the encoded information, and 3) *retrieval*—the process of recovering the stored information based on association. Thus, memory consolidation is the process of stabilizing the *memory trace* (*engram*), usually from the short-term memory system to the long-term memory system. The engram is the biophysical or biochemical changes in the brain as a result of learning. There is no exact representation of a memory, only partial representation (Bergmann, 2012; Lőrincz & Szirtes, 2009; Markowitsch, 2005; Shirvalkar, Rapp, & Shapiro, 2010; Stickgold, 2002, 2008). The activation of the neurotransmitters in the regions in which the original memory was created is reactivated to represent the original memory in a similar brain pattern (neural network) as the original memory (Lőrincz & Szirtes, 2009; Markowitsch, 2005). This is the basic understanding of the information processing system theory (Brown & Craik, 2005).

Memory, as stored information, is now understood from a systems perspective (Eichenbaum & Cohen, 2004; Tulving & Craik, 2005). There are two major forms of memory: declarative (explicit) and nondeclarative (implicit) memory (Milner, Squire, & Kandel, 1998; Stickgold, 2005; Tulving & Craik, 2005). The declarative (conscious) memory includes semantic (facts) and episodic (events) memory systems where the

medial temporal lobe is implicated (Dickerson & Eichenbaum, 2010). The semantic memory system encodes abstract knowledge about the world. This is the noetic consciousness where one uses the semantic memory to be aware of information. The episodic memory encodes personal information (experiences) of sensation, emotion, and personal associations to place or time. According to Tulving (1983, 1993, 2002), this is the what, where, and when of memory—the auto-noetic consciousness in which one re-experiences or relives the past by mentally traveling back in subjective space and time.

The nondeclarative (nonconscious) memory includes procedural (skills and habits), priming, simple classical conditioning (Pavlovian conditioning), and nonassociative learning (Milner et al., 1998). The procedural memory system involves learning motor skills, which are acquired by repetition and involve the striatum. Priming memory is the effect when exposure to a stimulus influences the person's response to a later stimulus (the neocortex is involved). Pavlovian conditioning (emotional memory) is a learned condition to respond automatically to a stimulus with fear, joy, or anticipation based on how it was conditioned (the amygdala and cerebellum are implicated; Tarpley, Shlifer, Birnbaum, Halladay, & Blair, 2009). Nonassociative learning is based on the reflect pathways of the nervous system.

The effect of PTSD is lack of memory consolidation, and thus the hippocampus is primarily affected (Gilbertson et al., 2002; Karl et al., 2006; Woodward et al., 2009). The hippocampus is understood to play the role of mediating memory consolidation “by establishing connections between the medial temporal lobes and neocortical areas” (Rauchs, Desgranges, Foret, & Eustache, 2005, p. 123). Therefore, understanding how

the hippocampus is affected is important (Carrion, Haas, Garret, Song, & Reiss, 2010; Hassabis & Maguire, 2007; Shirvalkar, Rapp, & Shapiro, 2010) because the information may not be consolidated to the memory network and the “perceptual and semantic memory systems in the cortex are too weak to support direct recall” (Stickgold, 2002, p. 64). According to Stickgold (2002), semantic memory is activated in the neocortex with highly overlapping neural networks, which often construct memories from other memories (Hofer, 2010; Phillips, Velanova, Wolk, & Wheeler, 2009; Van Kesteren, Ruiter, Fernandez, & Henson, 2012). PTSD disrupts memory consolidation from episodic memory to semantic memory (Hayes et al., 2011; Stickgold, 2002, 2005). Thus, associations between other events are not connected and the person has not learned from the experience or given meaning. In other words, the only memory available is through the amygdala, implicitly (Brewin, Gregory, Lipton, & Burgess, 2010). Memory integration is the formation of meaning and understanding, which PTSD disrupts. That is why Stickgold (2008) suggests that PTSD should be considered more of a memory disorder rather than an anxiety disorder (Cohen et al., 2010).

Social workers need to know information about neuroscience in order to understand the effects of PTSD on a client (Carbajal & Aguirre, 2013). Trauma affects how the brain processes information and leads thinking that is more emotional than logical. Social workers need to have this understanding in order to assess and treat the client appropriately (i.e. determine social environmental factors to help client and deter symptom exacerbation). For example, when a client’s autonomic system is activated due to trauma and there is no real danger, a social worker’s primary objective (from a

neuroscience standpoint) is to deactivate the autonomic system. In other words, a social worker needs to help the client activate the prefrontal cortex and deactivate the amygdala. Therefore, the intervention social workers use must specifically relate to reducing the effects that trauma is creating in a client and need to match the symptoms that the client is exhibiting. More is discussed below on the intervention that social workers can use to help clients who have posttraumatic symptoms.

PTSD Treatment

PTSD treatment, regardless of modality, aims at “the derailed and repeated exposure to traumatic information, and the modification of maladaptive beliefs about events, behaviors, or symptoms,” thus, “changing the content or structure of trauma memories” (Brewin, 2003, pp. 181-193; Gelinas, 2003; Zoellner, Feeny, Eftekhari, & Foa, 2011). According to Van der Kolk (1994), “...hyperarousal, intrusive reliving, numbing, and dissociation get in the way of separating current reality from past trauma” (p. 261). Brewin (2003) states that “If arousal is too low, this may mean that the traumatic images stored...are not being accessed. If arousal becomes too high and the person starts to dissociate, becoming too overabsorbed in the traumatic memory...the person will re-experience the trauma” without processing it (p. 195). Trauma treatment requires delicacy and adeptness in order to maintain a healthy tolerance level and to help the client process the traumatic experience. Thus, the goal of PTSD treatment is to reduce symptoms and improve overall functioning (Falsetti, Erwin, Resnick, Davis, & Combs-Lane, 2004; Foa, Hembree, & Rothbaum, 2007).

Due to the complexity of PTSD symptoms, there are many interventions to treat PTSD. Some interventions focus more on cognitive restructuring while others focus on avoidance and affect regulation. These treatment modalities are discussed below.

PTSD Treatment Modalities

Cognitive-behavioral therapy (CBT) is used most frequently to treat PTSD (Ehlers & Clark, 2008; Friedman et al., 2007; Resick, Monson, & Gutner, 2007; Saxe, MacDonald, & Ellis, 2007; Solomon & Heide, 2005; Tarrier & Humphreys, 2004). Many interventions are derived from CBT: trauma-related exposure therapy, exposure therapy (Cahill & Foa, 2004), prolonged exposure therapy (PE; Foa et al., 2007), stress inoculation, cognitive restructuring, virtual reality exposure therapy (Monson, Friedman, & La Bash, 2007; Rothbaum, Ruef, Litz, Han, & Hodges, 2004), multiple channel exposure therapy (MCET; Falsetti, Erwin, Resnick, Davis & Combs-Lane, 2004), cognitive processing therapy (CPT), interoceptive exposure therapy (IE), transtheoretical model (Taylor, 2004), and eye movement desensitization and reprocessing (EMDR; Shapiro, 2001). However, the most accepted therapies (trauma-focused interventions) for treating PTSD are cognitive therapy (CT), CBT, CPT, PE, and EMDR (Foa et al., 2007; Friedman et al., 2007). Since these interventions are validated (empirically supported), they fall under the category of evidence-based practice (EBP), which is often referred as evidence-based treatment (EBT), evidence-based intervention (EBI), empirically supported treatment (EST), or empirically supported intervention (ESI; Woody, D'Souza, & Dartman, 2006).

Five efficacious treatment intervention modalities are presented below (Cukor, Spitalnick, Difede, Rizzo, & Rothbaum, 2009; Makinson & Young, 2012). These approaches aim at restructuring the maladapted cognition, emotion, and behavior along with reducing those symptoms that are tied to the traumatic experience at the physiological level. All the interventions follow a similar format: psychoeducation, symptom stabilization, treatment, and symptom reduction reevaluation. Furthermore, all the interventions require training to a certain degree, which is usually involved in EBP. The level of training ranges from graduate school introduction to the intervention to full training that includes protocols and manuals. Full training is usually at least forty hours along with consultation during and after the training.

Cognitive therapy. Cognitive therapy (CT) is based on Aaron Beck's (1976) work. CT is also similar to rational emotive behavioral therapy (REBT) developed by Albert Ellis (1973, 1994; Ellis & Maclaren, 1998). Both of these interventions have similar assumptions. Ellis' premise in REBT is that self-talking, self-evaluating, and self-sustaining beliefs lead to self-defeating beliefs. The assumption of CT is that self-beliefs (cognitive schema) affect the person's behavior and affect. A person's negative self-beliefs are the maladaptive schema. These self-beliefs at the surface level are often observed through cognitive distortions (Beck, 1963). Thus, once the maladaptive schema is activated, negative emotions follow. The cognitive distortions, which Beck calls automatic thoughts, once activated, sustain the negative belief and maintain the maladaptive behavior or affect (Beck, 1963). This, in effect, allows the person to attend selectively to a threat that does not exist in the present, thus creating an attention bias

toward negative stimuli. Beck's perspective is that the problem is not the event but the interpretation of this event based on the belief system of the person (schema), which is automatic without conscious evidence or effort.

CT is well established for effectively helping clients with depression and anxiety disorders (Beck & Dozois, 2011; Beck, Rush, Shaw, & Emery, 1979; Koder, Brodaty, & Anstey, 1996; McGarvey & Collins, 2001). Since CT has been validated for its use with clients diagnosed with depression and anxiety, understanding how it is applied with clients with PTSD is important. That is, CT addresses the negative belief and maladaptive behavior or affect that a client might have as a result of PTSD symptoms. For example, the beliefs the person has lead to the traumatic experience and maintenance. These beliefs, as trauma often creates, are in conflict with a person understanding the event. The conflict between beliefs and event is the trauma; or, prior maladaptive schema reinforces those current beliefs. Thus, CT focuses on those cognitions to reappraise the prior beliefs with the current beliefs that are causing the conflict (trauma) and maintaining PTSD symptoms. The treatment then is to bring those unconscious schemata to consciousness so the person might more appropriately appraise those automatic reactions, thoughts, and feelings. It is through this cognitive appraisal of internal and external stimuli that the person becomes conscious of his or her schemata and begins to reshape (modify) its meaning.

Controlled studies showing efficacy for PTSD with CT are very limited. Most of the studies are with CBT. For example, two studies were found which specifically used CT. Wild and Ehlers (2010) used CT in a case study to change the appraisal of the event,

memory (intrusive thoughts), and the client's maintenance behaviors and coping strategies. They found that it was effective with their client who had a car accident. Similarly, Payne and Edwards (2010) worked with a 15-year-old rape victim who had PTSD. After CT treatment, the client had no PTSD or depressive symptoms. However, this case study included trauma narrative specifically to work on the intrusive memories. Nixon, Sterk, and Pearce (2012), in a randomized trial of children with PTSD, compared CT and TF-CBT to test the efficacy of these two interventions. However, the only difference between the two intervention protocols was the exclusion of exposure from CT. They found that their clients' mothers influenced the clients' recovery if the mothers had depression (13% of the variance) or unhelpful beliefs (31% of the variance). The findings of this study regarding their mothers are consistent with social support as a therapeutic benefit to clients, especially with CBT and exposure therapy (Thrasher, Power, Morant, Marks, & Dalglish, 2010). CT and TF-CBT were both effective and exposure was not a deterrent to treatment adherence.

Cognitive behavioral therapy. Cognitive-behavioral therapy (CBT) combines CT and REBT with cognitive behavior modification (CBM). CT and REBT were previously discussed in the CT section. CBM was developed by Donald Meichenbaum. Meichenbaum's (1977, 1994) premise is that cognitive structure is considered the aspect of thinking that monitors and directs a person's choice of thoughts. Cognitive structure (schema) is the blue print of emotions, behaviors, and thoughts. Meichenbaum (1977) developed the concept of cognitive restructuring, most often known as the cognitive triangle. CBT is the aggregation of CT, REBT, and CBM, which is conceptualized in the

ABC theory. ABC theory purports that an event causes an emotional and behavioral response based on the person's belief. In order for the person to correct that maladapted emotional and behavioral response, the person must dispute the belief. By disputing the maladapted belief, an adaptive cognition (belief) is created and a new belief is adopted changing the person's previous emotional and behavioral response to a set of new ones. Thus, the process of cognitive restructuring is used.

As CBT is a broad intervention, it is widely used for psychological problems other than PTSD symptoms. The two specific components of CBT that are used for treatment of PTSD are imaginal exposure and cognitive restructuring. Therefore, I discuss CBT as it relates to PTSD and imaginal exposure and cognitive restructuring.

In a multisite randomized controlled study, Dorrepaal et al. (2010) compared CBT and treatment as usual (TAU) with clients (N=71) who had complex PTSD and other psychiatric disorders due to childhood sexual abuse (CSA). The treatment was focused on psychoeducation and stabilization using group processes to decrease core symptoms of PTSD. They found that group CBT and TAU were effective, with CBT having a larger effect size. Steil, Jung, and Stangier (2011) studied the efficacy of two cognitive restructuring and imagery modification sessions with adult survivors (N=9) of CSA. They specifically targeted the participants' feeling of being contaminated due to the sexual abuse. They found that there was a significant reduction of intensity of feeling being contaminated after the two sessions and a reduction in posttraumatic symptoms as well.

Seidler and Wagner (2006) conducted a meta-analysis to ascertain EMDR's superiority over Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). They looked at eight studies, seven which were meta-analyses, that compared EMDR and TF-CBT from 1989 to 2005. They could not determine if one was superior to the other. They concluded that both appeared to be equally efficacious. In another meta-analysis, Kowalik, Weller, Venter, and Drachman (2011) examined the efficacy of CBT with children who had PTSD. They looked at eight randomized controlled trials of CBT from 1996 to 2005. They concluded that CBT was effective for treating children with PTSD.

Deblinger, Mannarino, Cohen, Runyon, and Steer (2011) tested the efficacy of the trauma narrative (TN) in TF-CBT and treatment length with children (ages 4-11) who had CSA history and PTSD. They randomly assigned children and parents (caregivers) to eight sessions with TN (n=52) or without TN (n=52), and 16 sessions with TN (n=52) or without TN (n=54). They found that all groups had efficacious outcomes, and that there was greater reduction in PTSD symptoms with 16 sessions compared to 8 sessions but only in one PTSD symptom, re-experiencing and avoidance. Parents who participated in the 16 sessions without TN had greater improvement parenting practices compared to those who participated with the TN group. Furthermore, children who received no TN had fewer externalizing behavior problems as compared to those with TN. The researchers attribute this finding to the no TN because therapists spent more time with parents. However, the parents who participated in the eight sessions with TN compared to without TN had less emotional distress related to the abuse. The children, regardless of treatment length, had less abuse-related fear with TN compared to without TN, and

significantly less anxiety in the 8-session group with TN. The researchers concluded that the 8-session with TN is the most efficient and efficacious in terms of emotional distress reduction in parents and reduction of fear and generalized anxiety in children.

In a similar study to determine the effectiveness of TF-CBT with younger children (3-6 year-olds), Scheeringa, Weems, Cohen, Amaya-Jackson, and Guthrie (2011) focused on children who experienced trauma, acute injury, witnessed domestic violence, or were victim of the Hurricane Katrina disaster. They randomly assigned children to two groups, immediate treatment (IT, n=40) and waitlist (WL, n=34) group. They used drawings, imaginal exposure, and in vivo exposure to process the trauma (they replaced the trauma narratives of TF-CBT with these methods). The children on the WL met PTSD criteria after the IT group was completed; the WL received treatment after the IT group, and a six-month follow up was conducted. Their findings show that TF-CBT was effective. However, the younger the child was (ages 3-4), the more difficulty the therapist had with implementing the protocol and making sure the child understood the task. Nevertheless, they found that TF-CBT is effective with this age group and not necessarily only with those who experience sexual abuse but with other traumatic experiences as well.

Pietrzak, Harpaz-Rotem, and Southwick (2011) examined combat related severity PTSD symptoms in Operation Enduring Freedom and Operation Iraqi Freedom (OEF and OIF) veterans (N=167), especially relating to thought control and avoidance coping strategies. They compared OEF and OIF veterans with PTSD to those without PTSD. Those without PTSD did not use avoidance coping strategies (worry, self-punishment,

social control, behavioral distraction, and avoidance of unwanted thoughts, feelings, and situations) whereas those with PTSD used them. They argued that CBT treatment is effective at addressing these maladaptive patterns. McDevitt-Murphy (2011) goes further to argue that PTSD and alcohol use disorders with OEF/OIF veterans need to be simultaneously addressed with CBT protocols, as alcohol maintains maladapted coping responses. McDevitt-Murphy (2011) also argues that involving significant others could enhance CBT outcomes.

Felmingham and Bryant (2012), in a randomized controlled trial, examined PTSD differences between genders. Men and women were separated into two groups, exposure therapy only (n=65—32 men and 33 women) or exposure therapy and cognitive restructuring (n=43—20 men and 23 women). Participants were all trauma survivors (vehicle accidents or nonsexual assault). Felmingham and Bryant found that men in the exposure only group had an increase of PTSD symptoms at 6-month follow up compared with men in exposure and cognitive restructuring and women in exposure only. They found that women had smaller increases of PTSD symptoms at 6-months in both exposure only and exposure therapy and cognitive restructuring groups. They concluded that this outcome could be related to women having better emotional memories (and greater emotional tolerance capacity) to process PTSD, and that men see the expression of emotions as a sign of weakness, which reinforces avoidance and maladapted coping responses.

Cognitive processing therapy. Cognitive processing therapy (CPT) was developed by Resick and Schnicke (1993). They originally developed CPT to treat sexually

assaulted victims but was later adapted to treat individuals with combat-related PTSD (Monson et al., 2006; Resick, & Schnicke, 1993). The theory behind CPT is based on social cognitive theory. It focuses on how the person construes and copes with the traumatic event. CPT's treatment protocol is based on information processing theory and emotional processing theory (Foa, Steketee, & Rothbaum, 1989; Lang, 1977; Lang, Davis, & Öhman, 2000). These theories conceptualize PTSD as a mental fear structure that includes stimuli, responses, and meaning. This fear structure is broadly generalized so it has easy access to defensive mechanisms (the rapid access is critical in terms of real danger so the person might respond appropriately to defend against threat). Reminders of the trauma usually activate the fear network and the repetitive exposure of the traumatic memory in a safe place results in habituation and thus deactivates the fear structure (physiologically the person learns that there is no real danger). Thus, once the avoidance of the traumatic memory diminishes, the meaning of the traumatic event is modified.

CPT, similar to CBT, focuses on the content of the cognition and the effect of distorted cognitions on emotional and behavioral responses. With this understanding, CPT conceptualizes that people tend to assimilate, accommodate, or over-accommodate as a response to the trauma. Assimilation is changing the incoming information to match prior beliefs and changing beliefs to incorporate the new information. Over-accommodation is changing beliefs not just about oneself but also about others and the world, to an extreme, in order to feel safe and in control. Thus, CPT uses similar processes to CBT and prolonged exposure therapy. However, CPT uses a narrative approach (whereas CBT uses imaginal exposure and cognitive restructuring) to challenge

over-accommodation to the traumatic event. The ability of the person to express affect is needed but not for the purpose of habituation but to change the trauma memory.

CPT has been validated as effective for PTSD and depression (Chard, Ricksecker, Healy, Karlin, & Resick, 2012; Iverson et al., 2011; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Chard (2005), in a randomized controlled study, examined the effectiveness of CPT with abuse survivors (N=71) who had PTSD, depression, and dissociation. The evaluation was on the utility of individual and group therapy using CPT protocol. This format of CPT was effective at reducing PTSD and depressive symptoms (only 7% met PTSD diagnosis post-treatment compared to 64% of those on the waitlist). However, Chard noted that CPT might not have reduced the dissociative symptoms effectively. Resick, Suvak, Johnides, Mitchell, and Iverson (2012) specifically examined the effect of dissociation in PTSD and CPT treatment. They found that those with high levels of dissociation had fewer symptoms with CPT than with CPT-C, whereas those with lower levels of dissociation had fewer symptoms with CPT-C.

Nishith, Nixon and Resick (2005) compared CPT and prolonged exposure (PE) with female rape victims (N=98) who had PTSD and depression, specifically targeting guilt, as it predicts depression. They found that CPT had a larger effect size than PE. Similarly, in a controlled trial of CPT, Monson et al (2006) studied veterans (N=60) with chronic military-related PTSD. After the treatment, 40% did not meet criteria for PTSD and there was improvement in other symptoms (e.g. depression, anxiety, guilt, and social adjustment). However, avoidance and hyperarousal symptoms did not improve compared

to the waitlist group. It appears that PE was more effective at reducing avoidance and hyperarousal symptoms than CPT.

In another study with military veterans (n=42), Chard, Schumm, McIlvain, Bailey, and Parkinson (2011) examined outcomes using CPT-C with veterans at a residential treatment program who had PTSD and TBI history. They found that veterans who had mild TBI had less improvement in PTSD symptoms. Veterans who experienced the CPT-C intervention had significant reduction in PTSD and depression symptoms from pre- to post-treatment. Similarly, Forbes et al. (2012), in a multisite randomized controlled trial in Australia, compared CPT and treatment as usual (TAU) with veterans (n=59) who had military-related PTSD. They found no difference between the two groups in treatment credibility, expectancy, and therapeutic alliance. In terms of PTSD symptom reduction, they found that CPT produced significantly larger reductions in PTSD symptoms than TAU.

Rizvi, Vogt, and Resick, (2009) compared CPT and PE dropout rates and PTSD symptom reduction. All participants (n=145) were women who met PTSD criteria due to rape. They were randomized into CPT or PE groups. No statistical significance was found in dropout rates between CPT and PE groups, but they found that younger women were more likely to drop out than older women. They found that younger women had fewer symptoms with CPT and older women had fewer symptoms with PE. They also found that those who had higher scores in depression and guilt had better treatment outcomes (fewer symptoms at the end). Thus, those with higher PTSD symptom scores compared to those with lower PTSD symptom scores had a greater PTSD symptom

reduction in both treatment conditions. More specifically, in a randomized controlled trial, MacDonald, Monson, Doron-Lamarca, Resick, and Palfai (2011) investigated PTSD symptom changes during treatment using CPT. Their participants (N=30) were military veterans who had military-related PTSD. They found no difference between the treatment and waitlist group at baseline. During treatment phase, the treatment group's PTSD symptoms declined compared to the controlled group's symptoms. They found rapid improvements early in treatment compared to later and there was a steady symptom decline as treatment progressed and those in the CPT group had no symptom spike during treatment. This could explain some of the dropout differences in Rizvi, Vogt, and Resick's (2009) study. The rapid change early on could be a motivator to staying and completing treatment. Furthermore, Gallagher and Resick (2012) examined CPT and PE mechanisms of change. They found that CPT's specific mechanism of change was changing hopelessness-maladapted cognitions, whereas PE's mechanism of change was changing symptoms through habituation. Resick, Williams, Suvak, Monson, and Gradus, (2012) conducted a long-term outcome follow up (4.5 to 10 years post treatment, n=126) comparing CPT and PE treatment of female rape survivors (n=171). They found that 22.2% (CPT) and 17.5% (PE) of people met PTSD criteria at the long-term follow up. The two groups did not differ in treatment improvement and maintenance.

Prolonged exposure therapy. Prolonged exposure therapy (PE) was developed by Foa, Hembree, and Rothbaum (2007). PE incorporates processes from learning theory, conditioning, and emotional processing theory (Foa & Kozak, 1986). These concepts are based on the work of Skinner, Lang, and Pavlov. The theory of PE is that fear formed as

a cognitive structure (memory) is programmed to escape from danger (Foa et al., 2007). The stimulus or situation activates the fear response system (physiological, e.g. elevated heart rate), and the meaning associated with the stimulus. Thus, the autonomic system of flight, fight or freeze is activated (Falconer et al., 2008; Van der Kolk, 2006; Yehuda & LeDoux, 2007). However, when this fear structure becomes pathological, fear responses do not match reality. The evoked physiological responses interfere with adaptive behaviors, and the person has erroneous responses to harmless stimuli and the associated threat is misplaced (Foa et al., 2007). Thus, stimuli activate the formed memory matching part of the structure and then generalize it to other parts (Foa et al., 2007). Treatment specifically activates the fear structure in order to modify the erroneous information with new information that is incompatible to the fear structure. This is done directly through imaginal and in vivo exposure procedures in a safe environment. The purpose of exposure is to lessen the response (traumatic cues), change the meaning in a controlled setting, and then move to a real life situation where the client is triggered (Foa et al., 2007). The repeated process, prolonged exposure of stimulus, allows habituation to occur and the PTSD symptoms to diminish, which in return helps the person gain self-control and a sense of self-competence.

PE is specifically validated for PTSD and anxiety (Foa, Steketee, & Rothbaum, 1989; Foa & Riggs, 1993; Foa & Jaycox, 1999; Foa & Cahill, 2001; Foa, Huppert, & Cahill, 2006; Institute of Medicine [IOM], 2007). The previous sections covered some of the empirical review in this section. Therefore, the discussion in this section will only focus on in additional studies of PE and other treatment interventions not covered

elsewhere. Many of the studies have compared PE to other interventions because PE is universally accepted as the most effective treatment intervention for PTSD (IOM, 2007). Boudewyns and Hyer (1996) conducted one of the earlier randomized controlled studies comparing EMDR and PE, and found no statistical difference between the two interventions. Van Etten and Taylor (1998) conducted a meta-analysis on EMDR and PE, and found that EMDR and PE were among the most effective treatments for PTSD. Furthermore, they found that behavior therapy, serotonin reuptake inhibitors, and EMDR “were the most effective” for PTSD (p. 138). However, they found that after PE treatment, clients did not meet criteria for PTSD and that EMDR and relaxation training did not differ from one another in this regard. They also found that people in the PE group had a greater reduction in avoidance, and reexperiencing symptoms and that EMDR was unaffected by the severity of the PTSD symptoms. Power et al.’s (2002) controlled study compared EMDR to exposure plus cognitive restructuring (E+CR) and a waitlist group in Scotland. They randomized clients who had PTSD (N=105) to EMDR (n=39), E+CR (n=37) or WL (n=29) group. They found that EMDR and E+CR were both equally effective at reducing PTSD symptoms in comparison to the waitlist.

NcLay, McBrien, Wiederhold, and Wiederhold (2010) used virtual reality exposure (VR-E) and PE with active military members (US Marines or Navy personnel) in Iraq. All the participants (N=10) met PTSD criteria. This report is based on case series of treatment analyzing the data retrospectively. No control groups were used or randomization. They found that VR-E and PE were effective (no statistical significance). However, none in PE group met PTSD criteria after treatment whereas one participant

met PTSD criteria in the VR-E group after treatment. Even though the sample is very small, this is the first study to report treatment in theater of operation (combat zone) using VR-E and PE. A note of caution is also warranted on this report as the last two authors worked for the company that makes virtual reality product.

Rothbaum et al. (2012) conducted a randomized pilot study to prevent the development of PTSD. They used a modified version of PE (three brief sessions) with patients at an emergency room who had experienced a life-threatening event. They had two groups, intervention (n=69; modified PE) and assessment (n=68; the participants in this group were only assessed and received no treatment—controlled group). They found that those who received the PE intervention had significantly fewer PTSD symptoms months after the traumatic event than those assigned to the assessment group. They also found that rape victims who received the intervention had higher effect sizes.

Yoder et al. (2012) compared outcomes of PE for veterans of different wars. Their sample consisted of veterans with PTSD from OIF/OEF/operation new dawn (OND, n=61), Vietnam (n=34), and Gulf War (n=17)—symptom severity was not statistically significant. They found that PE was effective with the three groups (Gulf War veterans having lowest effect size, slower symptom decline, and higher symptoms at the final session). The authors hypothesized that the Gulf War veterans' difference could be attributed to their experience (these veterans are more likely to have chronic fear of death due to biological agents rather than combat). They also found that the OIF/OEF/OND group completed treatment at a lower rate compared to the other groups. This finding is also consistent with Tuerk et al.'s (2011) study of OIF/OEF veterans (N=65) using PE.

They found rapid improvement early in treatment (from 1 to 5 sessions) and slower rate of improvement as treatment progressed.

Eye movement desensitization and reprocessing. EMDR was developed by Shapiro (2001); it is based on the Adaptive Information Processing (AIP) model, which approaches trauma from a neurophysiological approach (Saxe, MacDonald, & Ellis, 2007; Söndergaard, & Elofsson, 2008; Shapiro & Laliotis, 2011). The AIP model posits that pathologies derive from earlier life experiences, which are stored in the nervous system in a specific state. Pathological experiences are usually stored in a dysfunctional manner. They are stored as specific types of memories isolated from the rest of the memory network, without having access to positive affect and cognition (Shapiro, 2001, 2007, 2009; Solomon & Heide, 2005). This pathology blocks the information processing system from reaching resolution (not integrating episodic memories to the semantic memory system). Shapiro asserts that her model is aligned with the regenerative function of the body, in that the body is geared to heal itself when injured. Likewise, the mind has self-healing capabilities once the barriers blocking the information processing system are removed. Thus, the imbalance the trauma created achieves homeostasis. The process of EMDR helps those negative experiences metabolize and generalize to the associated memories. This process unblocks the information processing system leading to spontaneous appropriate behaviors (Shapiro, 2001). In other words, a connection is made with the memory network and the fragmented memory.

Similar to PE, EMDR is specifically validated for PTSD and anxiety (Carlson, Chemtob, Rusnak, Hedlund, & Muroaka, 1998; Feske & Goldstein, 1997; Högberg et al.,

2007; Power et al., 2002; Rothbaum, 1997; Scheck, Schaeffer, & Gillette, 1998). Much of the empirical review in this section has been covered in the previous sections. Therefore, this section will only focus on EMDR and other studies that have not been discussed. EMDR, because of the early claims that it was the most effective intervention to treat PTSD, had to explain the mechanism of action (how EMDR produces its effects). In this section, this issue is discussed along with empirical studies validating EMDR.

In EMDR, the component of desensitization and reprocessing during the dual attention focus (eye movement) or bilateral stimulation (hand-tapping or alternating sounds) has been questioned (Deville, 2005; Lilienfeld & Arkowitz, 2007; Taylor et al., 2003). The common criticism is that eye movement only serves as a distraction and that it is not the mechanism that makes EMDR work (Deville, 2005). However, the effectiveness of the bilateral stimulation and dual attention focus has been confirmed (Andrade, Kavanagh, Baddeley, 1997; Barrowcliff, Gray, MacCulloch, Freeman, & MacCulloch, 2004; Kristjánsdóttir & Lee, 2011; van den Hout et al., 2011). Shapiro (2001) states, “the dual stimulation appears to activate the information-processing system and allows processing to take place” (p. 31). She further asserts “that the eye movements serve to titrate the client’s response to the memory in other ways [that] make the dosed exposure a deconditioning experience” (p. 326). In other words, EMDR helps clients process traumatic memories neurophysiologically, through its dual attention focus (Gunter & Bodner, 2008; Pagani et al., 2011; Saxe, MacDonald, & Ellis, 2007).

Currently, the most pressing question regarding EMDR is the mechanism of action that has been theorized but not ascertained (Bergmann, 2010). In other words, how

does EMDR desensitize trauma and what is the process in the brain during EMDR (e.g. changing traumatic experiences to adaptive experiences)? Researchers are investigating how dual attention or bilateral stimulation works, the areas of the brain where traumatic experiences are reprocessed (Pagani et al., 2011), and ascertaining a temporal sequence in trauma processing (Maxfield, 2008). Hence, researchers now focus on understanding how eye movement affects working memory (Kristjánsdóttir & Lee, 2011; Maxfield, Melnyk, & Hayman, 2008; van den Hout et al., 2011).

The following studies describe EMDR's effectiveness. Taylor et al. (2003) compared efficacy, speed, and adverse effects of exposure therapy (n=15), EMDR (n=15), and relaxation training (n=15) with PTSD. Participants (N=45) were recruited from outpatient clinics—97% of participants had chronic PTSD and 65% had experienced more than one traumatic event. These researchers found that exposure therapy was superior to relaxation at posttreatment and follow up. All treatments reduced PTSD symptoms. EMDR was more effective than relaxation training at symptom reduction and exposure therapy was more effective than EMDR at symptom reduction. They concluded that EMDR might use similar mechanisms to those of exposure therapy. They, however, did not test specifically for the active ingredient in EMDR. Instead, they demonstrated that exposure therapy is more effective than EMDR.

Lee, Taylor, and Drummond (2006) investigated the active ingredient of EMDR more closely (Lee & Drummond, 2008). They explored whether reliving responses during the desensitization phase was associated with greater improvement in symptoms than distancing or associated responses. There were 44 participants and independent

assessors. They found that distancing during reprocessing created the greatest positive change, while reliving the experience had a negative association. This study demonstrated how the dual attention focus component is critical to EMDR treatment, which is different from exposure therapy. That is, there is no distancing in exposure therapy. Similarly, Servan-Schreiber, Schooler, Dew, Carter, and Bartone (2006) tested bilateral stimulation to determine its effects. They provided three sessions to the participants (N=21). They found that all three bilateral stimulation methods were significant in reducing the emotional disturbance level (Kristjánsdóttir & Lee, 2011; van den Hout et al., 2011), and that alternating bilateral stimulation was found to be significant only when a new memory was targeted. Finally, Schubert, Lee, and Drummond (2011) found similar findings to Servan-Scheiber et al. (2006). They found that there was a difference between eye movement and no eye movement and that there was greater distress reduction (emotionality and image vividness) with eye movement (Maxfield, Melnyk, & Hayman, 2008).

In conclusion, the five interventions (CT, CBT, CPT, PE, and EMDR) reviewed are considered the best interventions with PTSD. Practitioners are less familiar with CPT, PE, and EMDR. The best intervention, as reported, for hyperarousal and avoidance is PE, followed by EMDR and CPT. The reason might be that these interventions are considered trauma-focused interventions, whereas CT and CBT are not specifically considered trauma-focused other than the variation of CBT, e.g. TF-CBT. The best intervention with children is TF-CBT, followed by EMDR. Young adults have better treatment outcomes (greater symptom reduction) with CPT compared to PE, whereas older adults do better

with PE (EMDR falls in between these two interventions while CBT and CT is comparable).

Practitioners' Knowledge of Trauma Treatment

How much do social workers know about trauma and its treatment? A review of the literature on therapists' and social workers' knowledge of trauma treatment was conducted. The articles for this research review were located using search engines such as Academic Search Complete, PsycINFO, PsycARTICLES, Medline, Psychology and Behavioral Sciences Collection, Eric, and Social Work Abstracts. The key term database searches were therapist, clinician, psychotherapist, social worker, practitioner, knowledge, education, training, PTSD, trauma, treatment, and intervention. The period for the search was from 1990 to 2013. Articles were only included based on criteria: Therapists' knowledge of trauma (PTSD) or trauma treatment. Table 1 has an overview of the articles meeting criteria (N=23), and below is a discussion of the impact of practitioners' trauma knowledge on trauma treatment.

Table 1 Overview of Practitioners' Knowledge of Trauma Treatment

Research group	Sample	Purpose	Results
Allen, Gharagozloo, & Johnson (2012)	A nationwide surveyed of 262 clinicians serving maltreated children	Investigated clinicians' perception of interventions that they believe are adequately empirically supported to treat maltreated children	Clinicians who trained in TF-CBT correctly identified empirically supported interventions; however, less than a third were able to identify other ESTs (especially eclectic clinicians and social workers identified more non-EST as

Table 1—*Continued*

			empirically supported than CBT clinicians). Clinicians with more years of clinical experience reported more training in ESTs, and correctly identifying empirically-supported interventions, correlated with intervention training.
Back, Waldrop, & Brady (2009)	423 clinicians participated from four national organizations	Investigated clinician's perspectives on SUD/PTSD treatment	Clinicians reported that treating clients with SUD/PTSD as most difficult, and addressing trauma and substance abuse needs to be precisely decided in order to appropriately address avoidance of trauma.
Becker, Zayfert, & Anderson (2004)	852 psychologists (from New Hampshire, Vermont, and Texas) were randomly selected, of which 217 participated, and 50 members of a trauma interest group were surveyed, of which 29 participated	To determine the extent exposure therapy is used in clinical practice	The most common approaches the psychologists used were eclectic (37%), followed by psychodynamic/analytic (28%), CBT (21.3%), and cognitive (9%). The most common approach for the trauma group was CBT (76%). Sixty

Table 1—*Continued*

			<p>nine percent of psychologists had not received training in exposure therapy for PTSD whereas 93% of the trauma group received training in exposure therapy. Of those who had received training at graduate school, only 16% of psychologists received training compared to 41% in the trauma group. The factors influencing exposure therapy use were limited training (60%), preference of individualized treatment over manualized therapy (25%), and client decompensating with exposure therapy (22%).</p>
Bussey (2008)	8 social work field instructors and 6 students at the University of Denver, graduate school of social Work were surveyed	Describes pilot trauma certificate program to prepare MSW students to work with traumatized clients and reports post graduate survey	Students' self-efficacy skills improved post trauma certificate.
Clark, Sprang, Freer, & Whitt-Woosley (2012)	Licensed and certified behavioral health professionals (N=45; 45% social	To investigate how participants defined, assessed, and understood trauma	Most therapists do not use EBPs for trauma assessment and treatment

Table 1—*Continued*

	workers, 15% psychologists, 25% counselors, 10% psychiatrists, and 5% others) participated in 8 focus groups from an underdeveloped southeastern state regions.		approaches and acknowledged that assessing trauma is very complex; they objected to EBPs due to lack of ecological validity and clinical utility of standardized protocols. They also reported distrusting clinical research from university settings. Rural and urban therapist differ in their adoption of EBPs, rural therapists having a negative view of EBP while urban therapists having a positive view. They all also criticized the validity of DSM-IV criteria for PTSD.
Cloitre et al. (2011)	25 recognized expert clinicians in treatment of complex PTSD were surveyed	To survey trauma experts and determine treatment guidelines for complex PTSD	The majority endorsed a phase-based treatment approach for complex PTSD and agreed on PTSD symptoms; they did not select skills training or memory processing as a first-line intervention, but instead, agreed upon treatments that include narration of trauma memories and

Table 1—*Continued*

			emotion regulation interventions. The second-line interventions were cognitive restructuring, education about trauma, anxiety, and stress management. Two interventions were rated high in safety—bilateral stimulation and sensorimotor and movement strategies.
Cook, Biyanova, Elhai, Schnurr, & Coyne (2010)	2,156 national sample of psychotherapists (775 social workers, 488 professional counselors, 374 psychologists, 360 marriage and family therapists, and 158 others) participated from <i>Psychotherapy Networker listserv</i>	To determine psychotherapists' practice patterns in the U.S. and Canada	Only 8% worked with PTSD clients; CBT was the most widely used approach while EMDR was among the least used intervention.
Couineau & Forbes (2011)	Six sites in Australia that provide counseling to people with trauma (N=34)	Investigated barriers to practitioner self-efficacy and expectations about trauma-focused interventions	The most significant barriers to using a trauma-focused intervention were lack of confidence and skills (low self-efficacy), beliefs of negative impact on using interventions, and no training; however, after training, confidence and skills increased

Table 1—*Continued*

			significantly and participants' expectations of treatment outcome influenced their clinical behavior.
Craig & Sprang (2010a)	2400 trauma treatment specialists (clinical psychology and clinical social work) were nationally randomly selected in all 50 states and the district of Columbia. 711 responded and 671 were analyzed	Examined national trauma practice patterns of social workers and psychologists	72% of clinicians reported having specialized training in trauma treatment, and 28.5% reported having a caseload of individuals with PTSD; specialized training in trauma, older age, and higher percentage of PTSD caseload significantly predicted use of EBP; social workers are significantly more likely to use non-EBP than psychologists. Older age was associated with seeking specialized training.
Gray, Elhai, & Schmidt (2007)	461 trauma professionals participated—the International Society for Traumatic Stress Studies contact listserv was used to recruit participants	The purpose was to evaluate attitudes toward and use of EBPs	Age was significantly related to positive EBP attitude (younger respondents favor EBP); those who favored exposure CBT, had positive attitude toward EBPs, whereas psychodynamic practitioners had the least positive

Table 1—*Continued*

			attitude toward EBP. Finally, trauma-focused practitioners had significantly higher scores on the EBP scale compared to non-EBP group (those who do not use empirically based treatments). The number one barrier to trauma training and endorsing EBP is access (expense and time requirements) and lack of generalizability.
Hamblen, Norris, Gibson, & Lee (2010)	104 therapists participated in two-day CBT training in Baton Rouge, LA to deliver trauma services	To examine the effectiveness of CBT training in a community setting focused on treatment for disaster (Katrina)	Attitude about CBT improved, along with knowledge, and confidence increased among trainees
Katz, Nekorchuk, Holck, Hendrickson, Imrie, & Effler (2006)	273 participants (psychologists and social workers) were stratified randomly selected, 176 participated (n=130 social workers, n=46 psychologists)	To assess knowledge (related to EBP interventions for trauma, bioterrorism) of mental health professionals in Hawaii	74% reported having familiarity with PTSD criteria; mental health professionals who received training in trauma had higher PTSD knowledge base; and only 55% reported equipped enough to provide interventions after a traumatic event.

Table 1—*Continued*

Laska, Smith, Wislocki, Minami, & Wampold (2013)	Veterans Hospital in Madison, WI's archival clinical database (between 2006 and 2009) of veterans in psychotherapy treatment were analyzed—25 therapists were included (8 psychologists, 12 social workers, 5 trainees) and rated by their supervisor	Examined the variability in outcomes attributed to therapists using CPT	Therapists significantly varied in treatment outcome and 12% from therapists accounted for the variance in treatment outcome. Therapists' skills, specifically not colluding with clients in avoidance of difficult material produced the best outcome, along with adequate supervision and training.
McClure, Livingston, R. B., Livingston, K., & Gage (2005)	400 LPCs and 400 psychologists were selected randomly from LPCs and psychologists rosters in Texas. 122 LPCs and 157 psychologists participated.	To examine counselors and psychologists' perspectives about issues of managed care, internet counseling, and theoretical orientation	Therapists reported having a negative view of managed care, provided no internet counseling, and an eclectic approach was mostly used following CBT.
McKenzie & Smith (2006)	154 participants: general practitioners (n=59), psychologists (n=56), and psychiatrists (n=39) from the Department of Veterans' Affairs in Victoria, Australia	To investigate the knowledge of practitioners about PTSD	Psychologists and psychiatrists answered more questions correctly compared to general practitioners; however, questions about PTSD related to dissociative states were incorrectly answered (74%). Furthermore, years of experience was negatively

Table 1—*Continued*

			correlated—the more years of experience, the less correct the answers.
Najavits, Kivlahan, & Kosten (2011)	A nationwide survey of 205 Veterans Affairs staff was conducted	To assess their views of 11 psychotherapy models for PTSD/SUD	Supportive therapy, CBT, and relapse prevention were significantly higher in utility compared to manual-based models, such as EMDR, which was significantly lower. The majority used at least one manualized model; and many expressed a desire for more training in PTSD treatment.
Najavits, & Kanukollu (2005)	225 clinicians (35.7% social workers, 18.6% certified addiction counselors, 7.1% certified mental health counselors, 2.4% psychologists, and 1.2% others) in seven communities in Connecticut completed trauma training.	To evaluate clinician's PTSD/SUB knowledge of a two-day training plus a one-day follow up training six months later.	Clinician's knowledge pre-training was 68% and increased 5% post training. However, most participants did know basic facts about trauma and PTSD pre and post-training.
Rosen, Chow, Finney, Greenbaum, Moos, Sheikh, & Yesavage (2004)	Archival data was used from 1999-2001 from VA PTSD specialists and generalist mental health providers (N=332)	To assess VA clinicians' practice patterns in treating PTSD clients	PTSD specialist compared to generalist mental health providers used more validated questionnaires, and were more likely to discuss traumatic events directly.

Table 1—*Continued*

Spencer, Drag, Walker, & Bieliauskas (2010)	41 VA clinicians (12 physicians, 9 nurses, 8 physical therapists, 4 social workers, and 9 others) participated in an anonymous survey.	To determine clinicians' perception regarding the accuracy of symptoms reported by OIF/OEF veterans	Medical professionals overestimated correlation between veterans' self-report and test performance (neuropsychological tests).
Sprang, Craig, & Clark (2008)	All licensed or certified behavioral health providers (N=5752) in a southern state were surveyed, of which 1121 participated (7.6% psychiatrist, 16.6% psychologists, 48.7% social workers, 7.8% marriage and family therapists, 13.3% professional counselors, 4.4% alcohol and drug counselors, and 1.7% psychiatric nurse practitioners)	To investigate clinician practices' convergence and divergence from trauma practice guidelines	The majority (45.6%) could not identify a treatment approach of choice; CBT (29.2%) was identified as the preferred (social workers, LPCs, and psychologists) approach along with supportive counseling (6.1%), eclectic approaches (5.2%), and EMDR (4.7%). Trauma-trained providers were significantly more likely to report using EMDR and identifying a treatment approach of choice. Providers without trauma specific training were more likely to have no identifiable assessment strategy specific to trauma. Years of experience predicted specialized training.

Table 1—*Continued*

van Minnen, Hendriks, & Olf (2010)	255 trauma experts during the 2008 Annual NtVP conference in Belgian and Netherlands were randomized to two conditions	To investigate therapists' use of imaginal exposure with PTSD clients	Imaginal exposure (IE) was significantly used less than EMDR and supportive counseling; participants had less training in IE. However, more training in IE was associated with higher preference in EMDR use and lower preference for supportive counseling. If the client asked for a trauma-focused intervention, IE was significantly offered.
Weine, Kuc, Dzudza, Razzano, & Pavkovic (2001)	30 providers working with Bosnian refugees in Chicago were randomly selected	To investigate provider's knowledge and attitude regarding PTSD	87% reported knowing about PTSD but medical providers reported low knowledge of PTSD, which is attributed to having less education and training on PTSD (14% compared to 78% of mental health providers and community social service providers).
Weissman et al. (2006)	National cross- sectional survey from 221 programs (73 in psychiatry, 63 in PhD clinical psychology, 21 in PsyD, and 64 in master's level social work)	To determine the amount of EBT taught in graduate schools	Few programs required EBT training, and most required training was in non- EBT (67.3% in psychology and 61.7% in social work). CBT was the most taught EBT in all three disciplines.

Practitioners' Knowledge of Trauma and Treatment of Trauma

Research suggests that practitioners' knowledge of trauma treatment is related to their training in evidence-based interventions. Those who are trained in EBTs have higher trauma knowledge base than those who are not trained in EBTs. Furthermore, the lack of EBT training leads to eclecticism, which has been found to be ineffective with trauma treatment (Becker et al., 2004; Sprang, Craig, & Clark, 2008). The increase of trauma knowledge base also ensures that practitioners help clients with trauma avoidance, which is necessary in trauma processing, especially since trauma avoidance is common in trauma clients. Trauma-focused interventions directly address this issue, which is why a practitioner's training in trauma-focused interventions is important.

Intervention Treatment Choice

Practitioners' knowledge of trauma influences their choice of intervention in the treatment of trauma. For example, therapists who claim to use an eclectic approach are less likely to be well informed about trauma treatment. Becker et al. (2004) found that psychologists were more likely to choose an eclectic approach (37%) whereas practitioners trained in trauma chose CBT (76%) as their treatment of choice (McClure et al., 2005). Sprang et al. (2008) found that trauma trained-therapists (33%) compared to non-trauma trained-therapists (65%) were significantly more likely to report using EMDR (4.7%) and identifying a treatment approach of choice (e.g. CBT, 29%) as opposed to reporting an eclectic approach (5.2%). Van Minnen et al. (2010) found that increased training in imaginal exposure (IE) was associated with higher preference in EMDR use and lower preference for supportive counseling. In Cook et al.'s (2010) study,

the majority of therapists claimed CBT (79%) as their primary intervention but only 8% reported working with PTSD clients. In this study, the researchers did not report whether therapists received CBT training in graduate school or whether they sought training postgraduate. Cook et al.'s study might represent therapists' treatment choice, which may not relate to their trauma treatment knowledge base. Najavits et al. (2011) found a similar characteristic with VA staff; EMDR was not significantly used compared to supportive therapy and CBT. However, the VA staff expressed a desire for more training in PTSD treatment. This raises the question of therapists who use CBT. The specific components of CBT related to trauma are cognitive restructuring and IE. Therefore, those who use CBT need trauma training as well in order to be effective with trauma clients.

Evidence-Based Training

Research findings indicate that trauma treatment requires a phase-oriented approach (Cloitre et al., 2011) and that those trained with EBP know how to proceed with trauma cases. Thus, evidence-based training (e.g. CBT, PE, or EMDR, etc.) is critical to trauma treatment effectiveness. Allen et al. (2012) found that clinicians who trained in TF-CBT correctly identified empirically supported interventions, whereas those without TF-CBT training incorrectly identified non-EBT as empirically supported interventions (Spencer et al., 2010). Similarly, Craig and Sprang (2010a) found that clinicians who had specialized training in trauma treatment were significantly more likely to use EBP and that social workers were significantly more likely to use non-EBP than psychologists (Gray et al., 2007; Hamblen et al., 2010; Katz et al., 2006; Najavits et al., 2011; Rosen et al., 2004). Rosen et al.'s (2004) study showed that trauma specialists compared to

generalist mental health providers used more validated questionnaires and were more likely to discuss traumatic events directly. This is important because according to Back et al.'s (2009) findings, trauma in clients must be addressed precisely in order to prevent trauma avoidance.

In conclusion, the studies reported above regarding practitioners' knowledge of trauma treatment support the findings that training and education on trauma-focused interventions increase social workers' trauma knowledge and skill set. For example, Couineau and Forbes (2011) found that the most significant barrier to using a trauma-focused intervention was lack of confidence and skills (lower self-efficacy); however, training increased confidence and skills (higher self-efficacy; Weine et al., 2001). In addition, Laska et al. (2013) found that 12% of therapists' skills were attributed to the best outcome in clients. Therefore, in order to increase social workers' trauma knowledge and trauma treatment efficacy, training is necessary.

Social Workers' Self-Efficacy and Trauma Treatment

Trauma knowledge and skill development increases self-efficacy, the belief in having capacity to perform a task well. This knowledge and skill development begins in graduate school. Weissman et al. (2006) found in their national sample of 221 graduate programs that only a few programs required EBT training while most programs required training in non-EBT (67% in psychology and 61% in social work), with CBT as the intervention taught the most. Hamblem et al. (2010) found that CBT training improved therapists' knowledge and confidence level. Bussey's (2008) pilot study report of a

trauma-focused certificate program to prepare MSW students indicated that students' self-efficacy skills improved post trauma-certificate program.

EBP Intervention Training and Use of EBP Interventions

Working with trauma cases or individuals who have PTSD requires specialized training beyond graduate school. Training on interventions is the crux of specialization and continuing education is the maintenance of refining and sharpening the treatment intervention. The benefit of social workers specializing in trauma work is of utmost importance to the client and society. However, studies on social workers' trauma treatment interventions and training are very limited. Therefore, the studies reported here, unless indicated, do not include social workers. Studies about social workers generally focus on attitudes toward EBPs rather than the actual use of EBP, which is the focus of this study (Gira, Kessler, & Poertner, 2004).

Social workers' initial introduction to trauma-focused interventions is crucial as it determines the attitude they will develop (Chard, Ricksecker, Healy, Karlin, & Resick, 2012). One's attitudes about EBP influence one's EBP intervention training and effective use of EBP interventions (Smith & Manfredi, 2011). Simons et al. (2010) found, in the comparison of CBT and treatment as usual, that the outcomes were positive after therapists (N=12) were trained in CBT. Similarly, Decker, Jameson, and Naugle (2011) found in their review of therapists' training "that therapist training may produce positive reactions for therapists, short-term changes in attitude, knowledge, and skills, and long-lasting changes in therapist behavior and client outcome" (p. 279). Rauch, Eftekhari, and Ruzek, (2012) in their review of exposure therapy at the VA found that "...trainings are

effective in reducing attitudinal barriers to PE delivery and in increasing clinician self-efficacy for administration of the treatment” (p. 683). The influence EBP has on practitioners is critical as it implicates their practice pattern and intervention utility. Practitioners who favor EBP are more likely to continue with further training and use continuing education to stay abreast on EBP and their treatment intervention (Parrish & Rubin, 2011).

Gifford et al. (2012) found that clinicians implemented components of EBTs, and that clinicians focused more on client progress instead of discriminating between different types of treatment interventions. Gifford et al. also found that clinicians conducted inefficient and ineffective practices as well. They suggest providing training to reduce use of ineffective and inefficient practices in order to reduce harm to clients. Clark et al. (2012) conducted eight focus groups (N=45, of which 45% were social workers, 15% counselors, 10% psychiatrists, and 5% other) to determine practitioners’ low utility of EBPs. Clark et al. (2012) found that “...some rural therapists reported that a successful outcome occurred when clients become bored with treatment, began anticipating therapists’ interventions, or did not return for treatment” (p.356). They also found that therapists believed that “clients dropped out because they were not ready to receive treatment and others terminated because they did not need additional help” (p.356). This is problematic, as it is not based on a sound outcome evaluation.

Murphy and McDonald (2004) investigated social workers’ perception of EBP in rural settings in Australia. They found that social workers had difficulty applying EBP, lacked training in EBP, and had inadequate access to information technology; their work

was more generalist rather than specialist (McNeill, 2006). Clark et al.'s study (2012) similarly "found that most [therapists] did not use EBPs for trauma assessment and treatment approaches, but instead, utilized generalist approaches" (p. 356). Thus, training and positive attitude toward EBP can contribute to positive treatment outcomes.

Continuing Education and Use of EBP Interventions

Continuing education units (CEUs) are the mechanism to help social workers increase their knowledge and skills beyond graduate school. Continuing education is required for licensure maintenance. Requirements for CEUs vary from state to state and are based on their particular licensing requirements. In Texas, social workers are required to have at least 30 hours of CEUs for a two-year renewal period (Texas State Board of Social Worker Examiners [TSBSWE]). However, the research is limited about the impact of continuing education on social workers' practice or professional practice in other fields.

Williams (2007) stresses the need for mechanisms to better assess whether or not CE learning is applied. Grady et al. (2008) tested the relationship between ethics training at graduate school and CE on social workers' confidence level to ethics practice compared to nurses. They found that graduate training on ethics and CE influenced social workers' ethics, especially because social workers had more training on ethics, which influenced their ethics confidence level. They further differentiated between graduate training and CE (postgraduate) training and found that both were statistically significant (with graduate ethics training having higher significance level). Social workers were

more confident than nurses were. Ethics training and education, as Grady et al. suggest, influences the confidence level of social workers and nurses in ethics practice.

Continuing education can also prevent social workers from burning out or developing compassion fatigue, especially when working with traumatized individuals (Craig & Sprang, 2010b). Vicarious trauma caused by secondary trauma is prevalent with those who work with trauma cases. Social workers who are not trained in trauma work could easily have information overload from trauma cases. Those who work with trauma cases have mechanisms to protect themselves from trauma related information overload. Dane (2000), in a focus group, examined the effects secondary trauma had on child welfare workers. Dane found that workers needed more information on trauma dynamics, knowledge and skills, and self-awareness to reduce vicarious trauma. From the focus group, Dane developed a two-day workshop for child welfare workers. This workshop increased the workers' understanding of trauma and its effects, and it increased their coping strategies to handle trauma in order to reduce secondary traumatization. Part of preventing compassion fatigue is to reduce over-involvement or under-involvement with these types of cases and to minimize stress response reactions from the practitioner (Baum & Ramon, 2010; Geller, Madsen, & Ohrenstein, 2004). Lack of training in trauma reduced the practitioners' capacity to handle such cases (McLindon & Harms, 2011), which increased compassion fatigue. Craig and Sprang (2010b) found that EBP on trauma statistically significantly decreased compassion fatigue while it increased compassion satisfaction.

In conclusion, based on the limited information on social workers' knowledge of trauma treatment, it is evident that more research is needed to assess if social workers' training relate to their knowledge of trauma, self-efficacy in their work with clients experiencing PTSD symptoms and in their actual use of evidence-based interventions to treat trauma. Only 23 articles were specifically found regarding practitioners' trauma knowledge, and only two of these studies specifically examined social workers' self-efficacy with trauma treatment (See Table 1; Bussey, 2008 and Craig & Sprang, 2010a). In this study, I examined how social workers' knowledge of trauma and their trauma treatment efficacy influence social workers' use of evidence-based interventions.

Literature Review Conclusion

PTSD, resulting from trauma, is a problem for those who have it, especially because traumatic symptoms do not dissolve automatically as discussed in the introductory chapter and this chapter. Specific treatment interventions need to be implemented because of the complexity of trauma. This complexity is compounded by the fact that often people seek treatment long after their traumatic experience rather than immediately. Furthermore, PTSD affects a person neuropsychobiologically, complicating treatment even further.

Social workers need specialized skills in order to use trauma-focused interventions. Research findings support PE as the most effective intervention for reducing hyperarousal and avoidance followed by EMDR and CPT. Cognitive therapy and CBT are equally effective. However, research finds that social workers need

additional training in order to implement these interventions with clients who have PTSD symptoms (see Table 1).

Trauma intervention training is necessary in order for social workers to help clients with traumatic symptoms (Clark et al., 2012). With trauma training (trauma-focused intervention training), a social worker learns about the phases that are required for trauma treatment and the strategies (techniques) to use in order to reduce traumatic symptoms (Cloitre et al., 2011). Thus, the focus of this study is to measure the influence social workers' trauma knowledge and trauma treatment efficacy has on their use of evidence-based interventions.

Chapter 3

Theoretical Perspectives

The focus of this study is to determine how social workers' knowledge of trauma and trauma treatment efficacy influence their use of evidence-based interventions. Learning theory was chosen to guide this study because it explains the processes, factors, and conditions leading to learned behavior and effective performance (Estes, 1970; Tully, 1991; Zatorre, Fields, & Johansen-Berg, 2012).

Learning theories address the acquisition of skills in various forms (Bandura, 1986; Bigge, 1982; Carpenter, 2012; Estes, 1970; Gredler, 2001; Hergenhahn, 1982; Knowles, 1973; Madden IV, 1991). Across the spectrum of learning theories, there is a basic premise to learning: innate response (instinctual behavior) and progressive learning (Guthrie, 1942; Hergenhahn, 1982; Thorndike, 1911). This is affected by under stimulation or over stimulation, inhibiting learning or, sensory deprivation, restricting learning (Gredler, 2001). The innate response is automatic, i.e. biologically geared (Madden IV, 1991). These are basic physiological responses that often the person is not conscious of, but only notices the outcome of those responses, e.g. noticing an elevated heart rate due to feeling threatened. On the other hand, progressive learning is more conscious, i.e. the person is aware of the learning experience and how he or she is being shaped (Gredler, 2001). This study focuses on progressive learning. The assumptions of progressive learning undergird this study and the reason for choosing learning theories. In other words, further training leads to progressive learning and in turn leads to skill enhancement, i.e. the practitioner consciously chooses which training to attend and to

seek continuing education specific to his or her specialty, e.g. psychological trauma. This represents having self-efficacy and using adult learning strategies.

The major learning theories, behaviorist, cognitive, and adult learning are reviewed (Hergenhahn, 1982; Olson & Hergenhahn, 2009). These theories provide a context for this study.

Behaviorist Learning Theory

Behaviorist learning theory provides the understanding that behavior has to be reinforced in order for learning to occur, and once learning occurs, it becomes associative. Training is a form of reinforcement for practitioners to enhance their skills. Behaviorist Edward Thorndike (1911) proposed that learning occurs incrementally through trial and error and the relationship between these trials. That is, learning is the process of breaking down the information and understanding the mistake made to stop from making it again, thereby increasing learned behavior. Training workshops have this built in and that is why protocol training requires a practitioner to have consultation so they can learn from their mistakes.

The behaviorist theory is primarily based in B.F. Skinner's (operant or instrumental conditioning) and Ivan Pavlov's (classical conditioning) research (Hergenhahn, 1982). Their work focused on stimulus response conditioning, which is learning through reinforced practice (Maia, 2009). That is, if there is a response to the stimulus, you increase or decrease the magnitude of the stimulus based on the desired outcome (Hergenhahn, 1982). This is maintained to strengthen the association or connection. Association is based on the orienting reflex response, which results from the

tendency to attend to and explore novel stimuli (Guthrie, 1942). The assumption is that a stimulus controls behavior and directs anticipatory reactions, especially positive ones in terms of learning. Once the condition is set, it becomes associated or generalized. Estes (1970) stated, “The principal mechanism assumed to underlie the transfer of learning to new situations is stimulus generalizations” (p. 99).

The concept of stimulus generalization is a key component of behaviorist learning theory that applies to this study. Training provide the skills social workers should learn to address trauma in clients. The acquisition of these skills could be through training (direct association) or continuing education (vicariously, indirect association). Furthermore, social work training provides the transfer of learning mechanism, a positive reinforcement for practitioners to want to learn and to acquire skills, which sets the association for further training and skill development. This is a necessary behavioral change for self-efficacy.

Cognitive Learning Theory

Cognitive learning theory posits that learning occurs through the mental processes of an individual, which lead to behavioral changes. The cognitive structure changes are a result of learning—the transformation of knowledge and transference of information. For this study, changes in cognitive structures are attributed to training, which in turn lead to treatment competency (efficacy). This also contributes to understanding that an individual can improve treatment through taking purposeful actions in order to change his or her cognitive structure. Furthermore, social cognitive theory, part of cognitive learning theory, provides this study with the construct of self-efficacy—a person’s belief in the

ability to succeed in a situation (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Bandura, 1986). Self-efficacy is an excellent measurement. This measurement is at two levels. First, it measures social workers' ability to seek further training and greater knowledge base, i.e. social workers with higher self-efficacy are likely to seek more training in order to increase their confidence and skill set. Second, it measures social workers' perceived self-efficacy with trauma cases. Thus, it shows whether social workers perceive having competence in working with trauma cases.

The cognitive theory is based on learning through mental processes (schema) and not on a stimulus-response effect. Piaget's work has been influential in the cognitive theory of learning. Piaget's work focused on the concept of assimilation and accommodation (Hergenhahn, 1982). Assimilation is "the process of responding to the environment in accordance with one's cognitive structure [schemata]" (Olson & Hergenhahn, 2009, p. 284). In other words, the person responds based on previous knowledge of his or her environment. This is direct application of knowledge. On the other hand, accommodation is "the process by which the cognitive structure is modified" (Olson & Hergenhahn, 2009, p. 285). Earlier experiences result in more accommodations (cognitive structure modifications) than later experiences. That is, later experiences have fewer modifications compared to earlier experiences, which implies that childhood experiences are more solidified and more difficult to change later on in life. Moreover, rich sensory environment enhances development and learning because "the more complex the early sensory environment, the better are the later problem-solving skills" (Hergenhahn, 1982, p. 373). Hence, child development affects adult development; more

specifically, learning strategies learned as a child will influence an adult's learning experience. Bandura (1991) stated, "The weight given to new experiences depends on the nature and strength of preexisting self-conceptions into which the new information must be integrated" (p. 231). Preexisting learned strategies are critical to adult information integration.

The cognitive learning principles of assimilation and accommodation suggest that social workers who are trained in evidence-based treatments (EBTs) are more likely to continue using EBTs. In addition, social workers who are EBT trained have an attention bias (heedfulness) toward other trauma related EBTs by seeking further training in them (Becker, Zayfert, & Anderson, 2004). The accommodation process for social work practitioners begins with implementing the intervention they learned. Most importantly, if social workers' training is not on trauma-focused treatment will resist, from a cognitive learning framework, the needed changes to practice effectively with trauma clients.

Social-Cognitive Theory

Bandura's social-cognitive theory, which "analyzes human self-development, adaptation, and change from an agentic perspective," falls within the cognitive learning theory (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001, p. 125; Bandura, 1986). It is based on naturalistic settings where learning takes place by interactions between environment, personal factors, and behavior (Bandura, 1969, 1986). According to Bandura (1969), learning is through observation of others and deciding which behavior to adopt and enact. Thus, learning occurs through behavior modeling, vicarious reinforcement (evoking emotional response), vicarious punishment (inhibiting response),

and self-reinforcement (independent of consequence and self-prescribed standards of behavior, individual control of reinforcing events, and individual reinforcement agent; Bandura, 1986; Gredler, 2001). Consequently, this leads to self-efficacy, the “personal beliefs about one’s capabilities to be successful,” and self-regulation, the “proactive efforts to mobilize emotional, cognitive, and environmental resources” (Bandura, 1991, p. 229). Bandura (1969) stated, “Under naturalistic conditions behavior is generally regulated by the characteristics of persons toward whom responses are directed, the social setting, temporal factors, and a host of verbal and symbolic cues that signify predictable response consequences” (p. 25). These patterns are constantly reinforced by the action the person takes or by the attention the person receives. In addition, according to Bandura (1986), we learn from vicarious experiences or direct experiences, and social learning occurs within the interactions we have with others.

Social-cognitive theory is relevant and informative to this study because social work training begins in a naturalistic setting, field education. Field education provides social workers their first experience in working with trauma cases. Social work students begin to learn self-reinforcement attitudes and self-regulatory responses, establishing their self-efficacy. For example, social work students who use supervision will learn the importance of professional consultation as they seek further information. This implies that instead of a student feeling panicked or frozen by anxiety, the student addresses the negative physiological response due to his or her lack of mastery by seeking further guidance through the field supervisor, and in turn, the field supervisor positively reinforces and reduces the negative physiological responses by becoming an effective

model. The question is how successful were they and did they adopt and enact capabilities to be successful with trauma cases? However, this implies that social work students witnessed a positive role model, and if not, they sought one.

Self-Efficacy

The perception of self is a widely understood concept of the structure of self in how one thinks and acts. This is based on social cognitive theory (Bandura, 1995). This self-perception influences the construct of efficacy. Efficacy is the perception of one's ability to execute the required behavior successfully (Bandura, 1991). It involves self-appraisal, the belief in performance, which is influenced by self-observation, self-judgment, and self-reaction. There are four sources that contribute to efficacy beliefs: 1) mastery experiences—those in which the person has experienced success; 2) vicarious experiences—witnessing others model success and perseverance or demonstrating competence and use of effective strategies; 3) social persuasion—the by-product of others' encouragement and believing that the person possesses the capacity to succeed; and 4) physiological and emotional states—the reading of autonomic arousal and tension, and interpreting the somatic information correctly to reduce vulnerability and aversive physiological reactions (Bandura, 1986, 1991, 1995). These beliefs are reinforced through 1) direct reinforcement, 2) vicarious reinforcement, and 3) self-reinforcement (Bandura, 1986). In addition, self-efficacy performance is indirectly affected through cognitive, motivation, affective, and selection processes. The cognitive process is observed through a person constructing scenarios of success instead of failure. The motivation is based on the persistence of the person to continue at a task in spite of its

difficulty (being intrinsically motivated). The affective component is the person reducing his anxiety, frustration, or even depressive symptoms. Finally, the selection process is taking a task as a challenge to be mastered rather than as a challenge beyond one's capability, which reinforces to continue seeking challenging tasks, thereby increasing one's self-efficacy.

In this study, the construct of self-efficacy is used to measure social workers' trauma treatment efficacy in working with trauma cases. This construct informs how a social worker is influenced through self-directed processes. That is, the social worker must be attuned to his or her needs in order to improve and increase competence. Furthermore, the social worker must also have experiences that reinforce competency or be around others who have high self-efficacy. The effect on performance is the crucial component of self-efficacy. Thus, social workers' self-efficacy is critical to implementing treatment. It requires competency and confidence. Competence is the epitome of implementing an intervention. Therefore, a social worker's self-efficacy is essential to effectiveness.

Adult Learning Theory

Adult learning theory is based on the premise that an adult can self-direct his or her learning to reach his or her desired goal. In order to do this, the adult must have a collaborative self-directed inquiry and be able to: 1) diagnose needs for learning, 2) design a learning plan, 3) initiate learning (be a proactive learner), and 4) evaluate learning to rediagnose needs for further learning (Knowles, 1973, 1970, 1975).

The shift to self-directed learning occurs by changing the approach. This shift is from pedagogy, the art and science of teaching children, to andragogy, the art and science of helping adults learn (Bass, 2012; Knowles, 1970). Knowles (1970) stated, "...the process of maturing adulthood begins early in a child's life and that as he matures he takes on more and more of the characteristics of the adult on which andragogy is based (p. 39). The shift in adult learning perspective from pedagogy to andragogy is reflected in the characteristics of the individual, which are demonstrated through embracing "...the process of lifelong learning, and continuing education" (Knowles, 1970, p. 297). Furthermore, the andragogy process is the result of evaluating self-diagnostic results and learning needs. The person develops the skills to regulate motivation, affect, and social factors to obtain desired goals (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bembenuitty & White, 2012; Martin, 2004). Thus, the andragogy process of self-directed learning leads to higher performance and growth (Knowles, 1970).

Another factor of adult learning is that of experience (Dewey, 1938; Kolb, 1984). Experience reinforces attitude and behavior; and optimal experiences lead to growth, which modify the quality of previous experiences. According to Bower (2005) "...adult learners always come into a given learning situation with considerable knowledge, learning strategies, and specific associations that they use as best they can to optimize performance on the given task" (p.10). The adult learner takes previous experiences and assimilates them to current situations. This associative process enhances learning and increases performance quality.

Since this study seeks to examine trauma-focused treatment with self-efficacy, the adult learning perspective is crucial to help understand whether social workers seek to increase learning and to improve performance. A social worker must self-direct his or her learning through seeking further training in order to increase competency. In other words, the social worker must have the self-directed inquiry processes, which includes self-diagnosis to determine areas of growth needed in order to seek further training (Knowles, 1973). Thus, a social worker begins to shape his or her learning.

However, the process begins early in his or her social work career. It requires social workers to learn how to self-direct learning, reorient to learning as an adult, and to learn new ways of learning (Knowles, 1970; Mirriam, 2001; Teater, 2011). The skills of self-directed inquiry must be acquired. This starts by deconditioning from a child to an adult learner and develop the skills to self-direct and self-diagnose. That is, the social worker must decondition self from child learning effects, solely depending on the teacher for subject matter to be learned and only receiving performance feedback from the teacher. By deconditioning, the social worker can have optimal learning experiences. Knowles (1970) stated, “self-directed inquiry will produce the greatest learning” (p. 51). These optimal experiences lead to growth. Thus, self-reinforcement (intrinsic ones) leads to further deconditioning effects, especially to making an effective practitioner (Fortune, Lee, & Cavazos, 2005). Self-reinforcement has the highest probability of continuing professional edification because high expectations lead to increase in improvement. This is why it is important that a social work professional be an adult learner, to ensure the social worker will continue to refine and update his or her skills. This demonstrates a

social worker using adult learning strategies and self-efficacy, in particular to confidence and skill development.

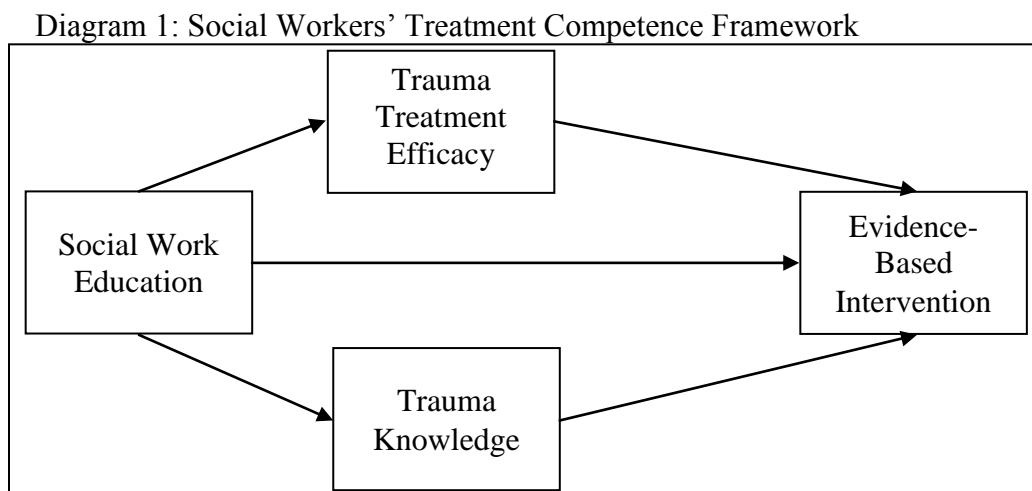
Conclusion

Social work skills begin to be demonstrated and refined in field education as the social work student implements the course work learned in classes. Field education is the first step to a social worker's professional career, and social work practice is the social work profession's core. It is the heart of social work; it is where social work consciousness is imparted (Freire, 1973a, 1973b; Homonoff, 2008; Miller, 2010; Wolfsfeld & Haj-Yahia, 2010). Practice is what differentiates the social work profession from other professions, e.g. psychology and sociology. Therefore, learning social work practice is paramount. This determines the learned behavior a social worker will have and if the social worker transitions from a child to an adult learners' perspective.

Thus, social workers' previous experiences provide amplitude of opportunities to learn and to build competence. A social worker's self-concept is developed and shaped through these experiences. Bandura (1991) stated, "After their perceived coping efficacy is strengthened to the maximal level by mastery experiences, they manage the same stressors without experiencing any stress or autonomic arousal" (p. 240). It implies that mastery experiences increase the social workers' ability to reduce perceive challenges and the stress along with those challenges. The practice experiences create anticipated self-reactions, which determine the perception of self-efficacy (Bandura, 1969). The experiences become internalized standards, guiding learned behaviors and future experiences, which are the practitioners' effect of efficiency and effectiveness (Bandura,

1991; Dewey, 1938; Palmer, 2001). Moreover, training adds to these experiences in which training is tested in practice and internalized based on the individual needs and desired outcome (Byers & Gray, 2012; Holden, Anastas, & Meenaghan, 2003; Holden, Anastas, & Meenaghan, 2005; Lager & Robbins, 2004).

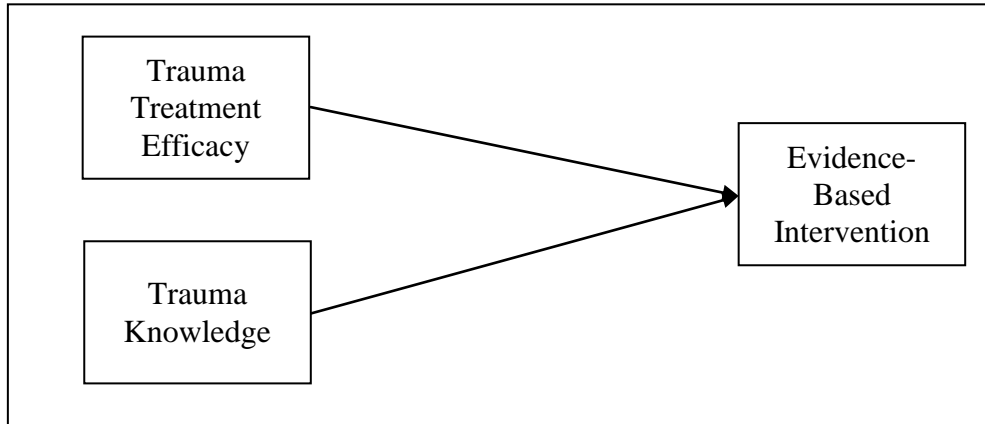
Social workers' capabilities derive from social work education, formal training, continuing education, and experiences following graduation (Diagram 1 shows how this is associated).



Trauma training increases a social worker's self-efficacy in order for him or her to employ competently an evidence-based intervention. As the level of competence increases in trauma-focused treatment, one would expect the level of self-efficacy to increase, thereby increasing knowledge and expertise (general knowledge base in their specialty). Those who have more trauma training are likely to be more competent and therefore use evidence-based interventions (Bahora, Hanafi, Chien, & Compton, 2008; Bandura, 1986). Therefore, knowledge of trauma, trauma treatment efficacy, and

evidence-based intervention use are assumed to be positively correlated, which are the independent and dependent variables for this study (Diagram 2 shows the association).

Diagram 2: Social Workers' Influence of Evidence-Based Intervention Use



Thus, based on the learning theories, the independent variables were tested to determine their strength to predict social workers' use of evidence-based interventions.

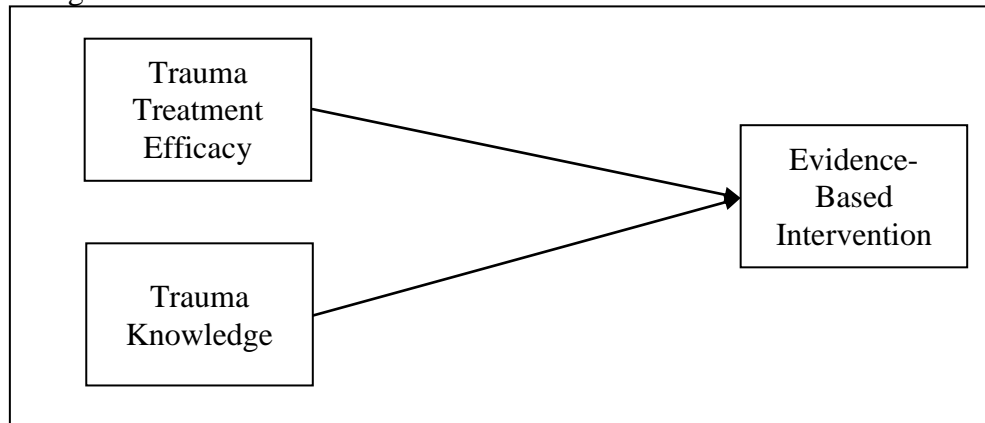
Chapter 4

Methodology

The focus of this chapter is the methodology of this study. First, I present the research questions and hypotheses. Then, I operationalize the independent variables and dependent variables. I discuss the research design including the instruments that were used in this study, and how the participants in the study were selected, and the data collection process. I conclude with a discussion of the analysis procedures and the Institutional Review Board (IRB) approval process for the study.

A nonexperimental research design was used in this study to examine if social workers' knowledge of trauma and trauma treatment efficacy predicted the use of evidence-based interventions (see Diagram 3). Thus, it was a cross-sectional study using survey methods to measure evidence-based intervention utility in a naturalistic setting (where social workers are currently practicing) at one point-in-time.

Diagram 3: Social Workers' Influence of Evidence-Based Intervention Use



Research Questions

1. How does the knowledge level of trauma influence licensed social workers' use of evidence-based interventions?
2. How does trauma treatment efficacy influence licensed social workers' use of evidence-based interventions?

Research Hypotheses

Hypothesis 1

The greater licensed social workers' knowledge of trauma following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Rationale

According to social-cognitive and adult learning theory, social workers' knowledge of trauma can increase self-efficacy, the ability to perform a task successfully, i.e. social workers' ability to perform trauma-focused treatment effectively with clients who have experienced trauma, and ultimately the use of an evidence-based intervention that will help them with treatment (Bandura, 1997; Knowles, 1975). However, the hypothesis that social workers' knowledge predicts their use of evidence-based interventions has not been tested. Thus, the hypothesis in this study confirms whether social workers' knowledge of trauma predicts the use of evidence-based intervention or not.

Independent variable. Knowledge of trauma

Operational definition. Measured by the scores attained on the Revised PTSD Knowledge Questionnaire scale (Appendix D). Further discussion on this scale is provided in the measures section.

Dependent variable. Use of evidence-based interventions

Operational definition. Measured by social workers reporting on a Likert scale the frequency use of evidence-based interventions (CT, CBT, TF-CBT, CPT, PE, and EMDR) with clients experiencing trauma (Appendix A, question 11).

Hypothesis 2

The greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Rationale

According to social-cognitive and adult learning theory, social workers' trauma treatment efficacy, social workers' ability to perform trauma-focused treatment effectively with clients who have experienced trauma can influence their use of an evidence-based intervention that will help them with treatment (Bandura, 1997; Knowles, 1975). However, the hypothesis that social workers' trauma treatment efficacy predicts their use of evidence-based interventions has not been tested. Thus, the hypothesis in this study confirms whether social workers' trauma treatment efficacy predicts the use of evidence-based intervention or not.

Independent variable. Trauma treatment efficacy

Operational definition. Measured by the scores attained on the Trauma Treatment Perceived Self-Efficacy scale (Appendix B). Further discussion on this scale is provided in the measures section.

Dependent variable. Use of evidence-based interventions

Operational definition. Measured by social workers reporting on a Likert scale the frequency use of evidence-based interventions (CT, CBT, TF-CBT, CPT, PE, and EMDR) with clients experiencing trauma (Appendix A, question 11).

Study Population

Sample Size

An *a-priori* power analysis was computed in *nQuery Advisor*, an online program, to determine the appropriate sample size for the study hypotheses, resulting in a sample size of 150 (Hsieh, Block, & Larsen, 1998; Soper, 2013). Although this was not an experimental study, it is recommended to have 80% statistical power to conduct multiple logistic regression statistical analyses (Hsieh, Block, & Larsen, 1998). Furthermore, in order to detect effects, reach conclusive findings, and minimize type II error, 80% power is ideal. Therefore, the statistical power level for a one-tailed hypothesis is .80, Cohen's d is .5, and significance level is .05 resulting in a sample of 150, which corresponds to an odds ratio of 2.61. However, in order to maintain this statistical power and because survey research has a low response rate, the survey was sent to all the members of the National Association of Social Workers of Texas (NASW/TX). The NASW/TX has approximately 3,297 master's level members. In Parrish and Rubin's (2012) study, they

emailed the survey to all the master's level NASW/TX members. Their response rate was 21% resulting in 688 participants who completed the survey.

Study Sample

The *a-priori* power analysis indicated that 150 licensed master-level social workers in Texas needed to be surveyed in order to establish 80% statistical power. According to the Texas State Board of Social Worker Examiners (TSBSWE), there were over 15,115 licensed master-level social workers; 3,297 were members of NASW/TX (Parrish & Rubin, 2012). Therefore, the NASW/TX listserv was used to survey all NASW/TX members with current email addresses. However, using the NASW/TX listserv increased sample normality violations. It decreased external validity. Nevertheless, surveying all NASW/TX members made this study feasible and cost effective. Furthermore, since the focus of the study was examining social workers' knowledge of trauma and trauma treatment efficacy, selecting all members provided greater variance between those who were less experienced versus those who were more experienced in trauma treatment. Thus, generalization only applies to social workers who treat clients with traumatic symptoms.

Research Design

Nonexperimental Design

This research study used a cross-sectional survey method to measure the effect social workers' knowledge of trauma and trauma treatment efficacy had on their use of evidence-based interventions. The sample consisted of active master-level social workers (N=3,297) in Texas. These social workers were licensed to provide behavioral health and

psychiatric care under supervision or independently without supervision in private practice, outpatient clinics, hospitals, or community agencies.

I partnered with the NASW/TX to conduct the study. The NASW/TX informed the participants that they were selected to participate in a statewide study of social workers. Furthermore, the cover letter stated that three participants who completed the questionnaire were going to be randomly selected for a \$25 Amazon gift card. The NASW/TX distributed the gift cards (Appendix E). Thus, the NASW/TX emailed the electronic survey (the first page of the survey was the consent form). Social workers had the option to accept or to decline to participate before they began the survey. Two months were allotted for participants to complete the survey. After the initial email, a reminder was sent every two weeks for two months.

Research Methods Justification

A correlational design was chosen for this study because it sought to examine the effect social workers' knowledge of trauma and trauma treatment efficacy had on their use of evidence-based interventions. The major weakness in using this design was that it could not control for spuriousness (a third or extraneous variable), i.e. causality could not be inferred, only relationships between variables could be determined. However, this design was best because it was conducted in a naturalistic setting, providing insight to social workers' current clinical practices. Thus, social workers' knowledge and treatment efficacy were measured without the need to have a control group and an experiment group.

Threats to Validity and Reliability

Internal threats to validity were minimized, especially as it related to instrumentation, and ambiguity of association (Drake & Jonson-Reid, 2008). The first internal validity threat was related to instrumentation (measurement). The Trauma Treatment Perceived Self-Efficacy scale, in this study, was adopted from the literature review (Bussey, 2008; Couineau & Forbes, 2011; Craig & Sprang, 2010). This adapted scale had not been tested, and no internal consistency reliability had been determined. However, Bandura's (1997) guideline on constructing self-efficacy scales was followed to construct the Trauma Treatment Perceived Self-Efficacy scale. Furthermore, trauma specialist practitioners (N=10) provided feedback on the scale to ensure the items included capture trauma treatment and skills adequately (face and content validity). In addition, concurrent validity was conducted with a validated self-efficacy scale that had high reliability ($\alpha=.90$; Schwarzer & Jerusalem, 1995). The validated self-efficacy scale was administered to ensure the construct of self-efficacy was appropriately measured with the Trauma Treatment Perceived Self-Efficacy scale.

The second internal validity threat was ambiguity about the direction of association (Drake & Jonson-Reid, 2008). Social workers' knowledge of trauma and trauma treatment efficacy might not influence their use of evidence-based interventions. However, from a theoretical standpoint, the construct of self-efficacy is about self-perceived performance, which is attributed to skill development and experience (Bandura, 1997; Dewey, 1938; Knowles, 1975). That is, those who do not have trauma treatment knowledge, training, and experience are less likely to be effective with

traumatized clients, especially because it requires precise treatment—trauma-focused, which requires training (Cloitre et al., 2011; Courtois, 2002; Courtois & Gold, 2009; Yarvis, 2011).

External validity threats were minimal compared to internal validity threats. The first external validity threat related to participant bias (Drake & Jonson-Reid, 2008). One bias was participants' interpretation of survey items. To minimize misinterpretation, the questions were focused specifically on trauma treatment using structured measurement. Furthermore, the instruments were pilot tested for readability and length of completion. Another participant bias also related to opting to participate or not to participate. This biased the sampling procedure. However, the statistical power analysis indicated acceptable statistical probability power .80, Cohen's d .5, and significance level of .05, if the sample was 150 for a one-tailed hypothesis (Hsieh, Block, & Larsen, 1998). Finally, participant bias might have occurred due to over inflated participant confidence (social desirability). However, one cannot be confident at performing a task if one does not know how to execute the required behavior successfully; learning theory postulates that confidence is based on a behavioral response and not on a cognitive perception (Bandura, 1991). Furthermore, according to Bandura (1997), even if confidence is inflated, it is congruent with the theoretical construct of self-efficacy because this means that practitioners are more likely to seek training in order to perform the task successfully or to perform tasks that are more challenging. Moreover, the Trauma Treatment Perceived Self-Efficacy scale has gradation of challenge (level of difficulty) to differentiate from

those who are less confident to those who are more confident to treat trauma (Bandura, 1997).

Measures

Background Questionnaire

The researcher developed the background questionnaire for this study (Appendix A). It included questions on social workers' level of education, licensure type, clinical experience, practice setting, and client trauma treatment. In addition, it included a question regarding social workers' use of evidence-based interventions (dependent variable). Furthermore, the background questionnaire included demographic questions and control variables (e.g. years of experience, continuing education, and formal training, etc.).

Trauma Treatment Perceived Self-Efficacy Scale

The Trauma Treatment Perceived Self-Efficacy scale was a revised version of Bussey's (2008) scale. Bussey evaluated seven students who participated in the trauma-focused certification program using a retrospective pre and post-test analysis. The results showed that students' means increased statistically significant from the pre-test to the post-test, changing students' self-efficacy skills in trauma and social work.

The scale for this study included Bussey's self-efficacy items plus items based on the empirical literature on trauma treatment. This adapted scale was reviewed by trauma specialists (N=10) and revised based on their recommendations resulting in 21-items. Moreover, in order to ensure the construct of self-efficacy was accurately measured on the Trauma Treatment Perceived Self-Efficacy scale, a General Self-Efficacy (GSE) scale

was used to test concurrent validity (Schwarzer & Jerusalem, 1995) and a reliability test was performed to determine its' Cronbach's alpha. The GSE was a reliable scale to use because the GSE is unidimensional, only measuring self-efficacy. The Trauma Treatment Perceived Self-Efficacy scale is scored on an 11-point Likert scale from 0 (cannot do at all) to 10 (highly certain can do), higher scores indicate higher self-efficacy in trauma treatment and skills (Appendix B).

General Self-Efficacy Scale

Jerusalem and Schwarzer originally developed and validated the General Self-Efficacy scale (20-items) and later in 1981 reduced it to 10-items (Schwarzer, 1992; Schwarzer & Jerusalem, 1995). The Cronbach's alphas for this scale range from .76 to .90 (Jerusalem & Schwarzer, 1992; Schwarzer & Jerusalem, 1995). This scale has convergent and discriminant validity and it has been tested internationally (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2004). Through confirmatory factor analyses, the scale has been found to be unidimensional, only measuring self-efficacy (Leganger, Kraft, & Røysamb, 2000; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002). Schwarzer and Jerusalem (1995) scale is scored on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree), higher scores indicate higher self-efficacy (Schwarzer & Hallum, 2008; Appendix C)

Trauma Treatment Perceived Self-Efficacy Scale Results

A Cronbach's alpha reliability test including inter-item correlation was performed to determine the Treatment Efficacy scale's (21-items) reliability. The reliability test resulted in an alpha of .98 (N=263). This indicated high multicollinearity (high

correlations among items). Thus, the inter-item correlation was examined to determine which items had correlation coefficients above .8. Those items with above .8 coefficients were dropped (questions 2, 6, 7, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20), resulting in an 8-item scale (1, 3, 4, 5, 8, 11, 15, and 21). A reliability test was performed on these 8-items (N=283) resulting in a .94 alpha. Thus, the treatment efficacy scale is an excellent measurement of social workers' trauma treatment efficacy. In addition, a correlation test was performed on the Treatment Efficacy scale and Self-Efficacy scale to determine the validity of the Treatment Efficacy scale. The Self-Efficacy scale's alpha is .89 (N=286). The Treatment Efficacy scale and Self-Efficacy scale were correlated $r(269) = .19, p = .002$. Thus, the Treatment Efficacy scale is valid and unidimensional (only measuring trauma treatment efficacy).

PTSD Knowledge Questionnaire

McKenzie and Smith (2006) developed the PTSD Knowledge Questionnaire. The items were constructed from DSM-IV and empirical literature (McKenzie & Smith 2006). The questionnaire has part 1, asking participants how well-informed they are about PTSD (1-item), and part 2 has 54 statements about PTSD (29 statements are true and 25 statements are false). The questionnaire is scored on a 5-point Likert scale, part 1 is rated from 0 (very poorly informed) to 4 (very well informed), and part 2 is rated from 0 (strongly disagree) to 4 (strongly agree). McKenzie and Smith established content and face validity by having staff at the Australian Centre for Posttraumatic Mental Health review the questionnaire. They pilot tested the questionnaire with postgraduate psychology students (N=16). Thus, they validated the questionnaire by examining PTSD

knowledge base of general practitioners (n=59), psychologists (n=56), and psychiatrists (n=39). The test-retest reliability was .89 and the Cronbach's alpha was .73 (McKenzie & Smith 2006).

For this study, a revised PTSD Knowledge Questionnaire was used to examine social workers' knowledge of trauma. The revision was on items from part 2, reducing it to 25 items. The items eliminated were those with poor readability, less relevancy to social work practice (e.g. more relevant to psychiatrists), or not based on scientific evidence and DSM-IV. This was likely to increase reliability as the scale was reduced to a unidimensional construct, i.e. unidimensionality increases item correlation, and the more the items correlate, the higher the reliability. A reliability test was performed on the Revised PTSD Knowledge Questionnaire scale to determine the Cronbach's alpha with the current sample (more is discussed on the next section; Appendix D).

Revised PTSD Knowledge Questionnaire Scale Results

A Cronbach's alpha reliability test and an exploratory factory analysis were conducted to evaluate the Trauma Knowledge scale. The items with reverse-scores were recoded. A reliability test was performed with all the items (25, N=240) resulting in a .77 alpha. An exploratory factory analysis of the 25-item trauma knowledge scale was conducted. The purpose was to evaluate the items' MSA (measure of sampling adequacy) and to improve the scale's reliability (Hair, Black, Babin, & Anderson, 2010). The anti-image correlation matrix was used to determine which items to drop. Those items with an MSA correlation coefficient below .8 were dropped (questions 1, 4, 10, 16, 18, 20, and 21) resulting in 18-items (N=253; questions 2, 3, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 17, 19,

22, 23, 24, 25). A reliability test was performed on these 18-items resulting in a .81 alpha. Thus, the trauma knowledge scale is a good measurement of social workers' trauma knowledge base.

Analysis Plan and Justification

SPSS 16 statistical software was used to analyze the data. Descriptive analyses (e.g. frequencies) were used to describe the study's sample and variables. This analysis provided information about participants (e.g. practice location, demographic information, clinical experience, etc.). From the descriptive analysis, crosstabs were conducted to determine differences within groups (e.g. practice location, licensure type, degrees, etc.). In addition, an outlier analysis (Mahalanobis distance) was conducted and a list wise deletion was used to maintain the data clean.

For the hypotheses test analyses and to verify that logistic regression analyses could be performed, analyses for linearity of the independent variables were performed. Moreover, a collinearity diagnostic was performed on the independent and control variables. This test determined if there was multicollinearity among the independent (knowledge of trauma and treatment efficacy) and control variables (type of licensure, years of clinical experience, percent of treating clients with trauma, years of trauma treatment experience, continuing education in CT, CBT, TF-CBT, CPT, PE, and EMDR, and training in CT, CBT, TF-CBT, CPT, PE, and EMDR); a correlation coefficient above .8 among the independent variables and control variables is considered collinear (Hair, Black, Babin, & Anderson, 2010). No multicollinearity was found among the independent variables (knowledge of trauma and treatment efficacy). However, the

collinearity diagnostic result in the control variables indicated that continuing education in EMDR and training in EMDR collineared $r_s(220) = .89$, $p < .001$. Therefore, continuing education in EMDR was dropped from the bivariate and multivariate analysis. Thus, the control variables for these analyses were licensure type (Appendix A, question 2), years of experience (Appendix A, question 7), percent of trauma related clients (Appendix A, question 9), years of trauma treatment (Appendix A, question 10), continuing education except in EMDR (Appendix A, question 13), and formal training (Appendix A, question 14).

Hypothesis 1 Statistical Procedure

Spearman correlation and logistic regression analyses were computed to determine if knowledge of trauma (independent variable; Appendix D) predicted the use of evidence-based interventions (dependent variable; Appendix A, question 11). This analysis determined how social workers' knowledge of trauma influenced the use of evidence-based interventions.

Hypothesis 2 Statistical Procedure

Spearman correlation and logistic regression analyses were computed to determine if trauma treatment efficacy (independent variable; Appendix B) predicted the use of evidence-based interventions (dependent variable; Appendix A, question 11). This analysis determined how social workers' trauma treatment efficacy influenced the use of evidence-based interventions.

Predictive Statistical Procedure

A multivariate and logistic regression was conducted to determine the probability of social workers' knowledge of trauma (independent variable; Appendix D) and trauma treatment efficacy (independent variable; Appendix B) on their use of evidence-based interventions (dependent variable; Appendix A, question 11; see Diagram 3), along with the control variables (Appendix A, questions 2, 7, 9, 10, , 12, and 13). This regression model assessed if social workers' knowledge of trauma and trauma treatment efficacy predicted the use of evidence-based interventions.

Potential Setbacks

The nature of survey research is that the response rate is usually low (<30%). Using the NASW/TX listserv to email the questionnaire and incentive increased the possibility of getting a greater response rate. However, approximately 11,000 of the social workers are not members of the NASW/TX, which decreased generalizability. Other social workers felt that they were not qualified or thought that this questionnaire did not pertain to their type of work (they selected to opt-out and thereby decreased representation). For example, social workers who did not treat clients with traumatic experiences had the option to stop completing the survey after they answered the first question. Another drawback to using online survey methods was internet glitches. That is, there were incomplete questionnaires possibly due to internet connectivity problems, skipping questions unintentionally, or lapses (intermittent connectivity; Rubin & Babbie, 2008; Parrish & Rubin, 2012).

Protection of Human Subjects

The Institutional Review Board (IRB) at UTA reviewed the completed protocol for this study and no data collection began until IRB approval. An exemption status was sought and approved, as a survey procedure was used and no human subjects were directly identified once the participant completed the questionnaire, except for the three randomly selected participants who received a \$25 Amazon gift card. Thus, there was an extra protection of anonymity through having the NASW/TX send the questionnaire to the selected participants and randomly selecting the participants for the \$25 Amazon gift card. The researcher had no access to this listserv or the ability to identify them. In addition, the questionnaire did not evoke emotional responses, only behavioral responses, regarding their practice experience, training, and education. The consent form was the first page of the electronic survey for social workers to accept or to decline to participate. Thus, if the participants clicked the accept button after reading the consent form, they consented to participate.

Chapter 5

Results

This chapter presents the results of the data analyses. First, I discuss demographic information and practice characteristics of practitioners who completed the survey. Secondly, I present the descriptive and correlation analyses of control, independent and dependent variables. Third, I present the results of the tested hypotheses. Finally, this chapter concludes with a summary of the multiple logistic regression analysis of the tested hypotheses.

Participants

The NASW/TX sent the electronic survey developed for this research study to approximately 5890 social workers in Texas. This included all social workers who were NASW/TX members as of October 1, 2013. The number of social workers who responded to the survey were 1007; approximately 965 social workers consented to participate with 432 social workers completing the survey. Less than 20% (n=533) participants partially completed the survey, and 42 declined to complete the survey. However, according to Parrish and Rubin (2012), there are approximately 3297 NASW/TX master's level social workers. Therefore, the sample size comparing the population can be approximated to a response rate of 13%.

The first 103 participants who took the survey skipped nine questions from the trauma knowledge scale. I detected the problem within 30-minutes and contacted Surveyshare, the electronic survey, website IT personnel regarding this problem. The IT personnel stated that it was a system glitch. The system glitch was fixed within 30-

minutes but 103 social workers had already completed the survey. Therefore, to maintain cleaner and consistent data, these participants were not considered for data analysis along with participants who had more than 50 percent of data missing from the survey, resulting in 301 participants for data analysis. To address missing data and maintain an accurate statistical estimate, a list wise deletion was used. A list wise deletion omits cases from data analysis whereas a pair wise deletion only omits missing data but not the case. Omitting only the data and not the case changes the parameters of the sample sizes and standard errors, increasing data result inaccuracies. Therefore, a list wise deletion provides a more accurate statistical result.

Participants' Demographics

Table 2 presents the demographic information of practitioners. The majority of participants were females (78.7%) and Caucasian (72.4%). However, Hispanic/Latino and African American respondents comprised of 13.3% and 4% of the sample, respectively. The average age of respondents was between 35 and 44 (14.6%) with the 55 to 64 age group having the highest participation (32.2%). Finally, the majority of respondents reported not speaking Spanish (73.8%). Of those who spoke Spanish, 11.8% were Caucasian and 10.4% were Hispanic/Latino.

Table 2 Social Workers' Demographic Information

	n	(%)
Gender		
Male	51	(16.9)
Female	237	(78.7)
Missing	13	(4.3)
Age		
34 or younger	52	(17.3)
35-44	44	(14.6)

Table 2—*Continued*

	n (%)
Age—continued	
45-54	42 (15.0)
55-64	97 (32.2)
65 or older	55 (18.3)
Missing	11 (3.7)
Ethnicity	
Caucasian	218 (72.4)
African American	12 (4.0)
Hispanic/Latino	40 (13.3)
Asian American	5 (1.7)
Native American	4 (1.3)
Multiethnic/Multiracial	7 (2.3)
Other	1 (.3)
Licensure type	
LMSW	114 (37.9)
LMSW-AP	6 (2.0)
LCSW	177 (58.8)
Other (no license)	2 (.7)
Missing	2 (.7)
Highest degree	
Masters	280 (93.0)
Doctoral	20 (6.6)
Missing	1 (.3)

The majority of social workers reported having an LCSW license (58.8%); 37.9% of social workers had a LMSW license and 93% of the social workers were master level.

Participants' Practice Characteristics

Table 3 presents the practice characteristics of social workers. Many of the participating practitioners had a private practice (35.5%); others worked in community settings (23.3%). Fewer practitioners reported working in outpatient/treatment center (14.3%), inpatient facilities (12%), and VA/vet center/medical center (10.3%).

The geographic locations for participating social workers were grouped based on population density and city sizes (Metropolitan area, Urban area, and Rural area).

Metropolitan areas (69.4% of participants) included Dallas-Fort Worth (DFW), Houston, Austin, and San Antonio along with their surrounding cities (e.g. for DFW, Arlington, South Lake, Lewisville were included as DFW participants). Many of the participants (24.9%) were from the DFW area. Urban areas, such as Waco, Lubbock, and Temple, were grouped together representing 20.6% of participants. Rural areas, (such as Nacogdoches, Tyler, and Odessa) were grouped together representing 7.3% of participants.

Over 90% of practitioners reported that they do or have treated clients with trauma; over 50% of participants reported that they had less than 10 years of experience treating clients with posttraumatic stress. Furthermore, less than 50% reported treating military members, but those who treated military members reported that treatment was related to posttraumatic stress. In addition, over 50% of practitioners reported having about 37.5% of their caseload comprised of people with trauma.

Practitioners reported using CBT (57%) as the primary intervention for trauma treatment followed by CT (43.9%). Practitioners reported they used EMDR (8%) and PE (5%) interventions the least for their trauma treatment. Moreover, 84% of participants responded to the trauma knowledge scale ($M=3.36$, $SD=.41$) and 94% of participants responded to the treatment efficacy scale ($M=5.99$, $SD=2.66$).

Table 3 Social Workers' Practice Characteristics

	n (%)
Clinical setting (Yes response only)	
Counseling/Community agency	70 (23.3)
Private Practice	107 (35.5)
Outpatient/treatment center	43 (14.3)
Inpatient	36 (12.0)

Table 3—*Continued*

	n (%)
Clinical setting (Yes response only)—continued	
VA/Vet center/medical center	31 (10.3)
Other settings	30 (10.0)
Missing	19 (6.3)
Geographic location	
Metropolitan area	
Dallas-Fort Worth area	75 (24.9)
Houston area	56 (18.6)
Austin area	48 (15.9)
San Antonio area	30 (10.0)
Urban area	62 (20.6)
Rural area	22 (7.3)
Missing	8 (2.7)
Trauma treatment	
Yes	280 (93.0)
No	19 (6.3)
Missing	2 (.7)
Treat military members	
Yes	126 (41.9)
No	174 (57.8)
Missing	1 (.3)
Years of trauma treatment	
0-9	157 (52.9)
10-19	66 (22.0)
20+	75 (24.9)
Missing	3 (1.0)
Client caseload a week	
<14	150 (49.8)
>15	144 (47.8)
Missing	7 (2.3)
Percent of trauma clients a week	
<50	182 (60.5)
>50	113 (37.5)
Missing	6 (2.0)
Intervention use (Yes response only)	
CT	132 (43.9)
CBT	172 (57.1)
TF-CBT	95 (31.6)
CPT	50 (16.6)
PE	15 (5.0)
EMDR	26 (8.6)
Other	76 (25.2)

Table 3—*Continued*

	n (%)
Intervention use—continued	
Missing	8 (2.7)
Independent variables	
Knowledge of trauma	253(84)
Mean	3.36
SD	.41
Missing	48(15.9)
Treatment efficacy	283 (94)
Mean	5.99
SD	2.66
Missing	18 (6)

Inferential Statistics

The data analyses for the bivariate analyses, multivariate analyses, and testing of hypotheses only included participants who answered “Yes” to treating clients with trauma (n=280) on the survey. The reason for excluding other social workers is because the purpose of the study is to predict social workers’ use of evidence-based interventions with clients who have experienced trauma. Furthermore, nominal data was dummy coded (clinical setting and intervention use [yes=1, no=0]). Dummy coding nominal data allows for Spearman correlations and logistic regression to be performed instead of a Cross Tabulation. The scales (Trauma Knowledge, Treatment Efficacy, and Self-Efficacy) were summated in order to create a single variable for each scale. Scale summation is computed so the scale can be represented as one item (variable) for Spearman correlations and logistic regression.

Bivariate Analyses

Various bivariate analyses were conducted (see Table 4): (1) the association between degree level and clinical settings; (2) the association between control variables

(type of licensure, years of clinical experience, percent of treating clients with trauma, years of trauma treatment experience, continuing education in CT, CBT, TF-CBT, CPT, and PE, and training in CT, CBT, TF-CBT, CPT, PE, and EMDR) and dependent variables (CT, CBT, TF-CBT, CPT, PE, and EMDR); (3) the association between clinical settings, control variables and independent variables (knowledge of trauma and treatment efficacy); and (4) the association between independent variables (knowledge of trauma and treatment efficacy) and dependent variables (CT, CBT, TF-CBT, CPT, PE, and EMDR).

Table 4 Spearman Correlation Matrix: Bivariate Analyses of Variables

	Intervention Use					
N=199	CT	CBT	TF-CBT	CPT	PE	EMDR
Highest degree	.01	-.10	-.05	-.01	-.14	.01
Clinical setting						
Coun/comm	-.09	.01	.10	-.03	-.17*	-.20**
Private pract	.07	.03	.07	-.01	.01	.25***
OP/RTC	.07	.02	.01	.12	-.01	-.14*
Inpatient	-.01	.04	-.12	-.01	-.10	-.06
VA/Vet cntr	.07	.06	-.11	.17*	.29***	.05
Other	.02	-.03	.05	-.13	-.08	-.03

*p<.05. **p<.01. ***p<.001.

Association Between Degree Level and Type of Intervention Used and Clinical Settings

Social workers' level of education was not statistically significant ($p>.05$) with the type of intervention they used (see Table 4). However, certain clinical settings were significantly correlated with type of intervention used. Counseling/community agencies were weakly negatively correlated with PE $r_s(197)=-.17$, $p<.05$ and EMDR $r_s(197)=-.20$, $p<.01$ use. Thus, social workers are less likely to use PE and EMDR in these two settings.

Only private practice was weakly positively correlated with EMDR $r_s(197)=.25$, $p<.001$ use. Social workers who are in private practice are more likely to use EMDR compared to those in other settings. Outpatient/residential treatment center was weakly negatively correlated with EMDR $r_s(197)=-.14$, $p<.05$ use. Social workers at an outpatient facility or residential treatment center are less likely to use EMDR. VA/vet center/medical center is weakly correlated with CPT $r_s(197)=.17$, $p<.05$, and PE $r_s(197)=.29$, $p<.001$ use. Thus, social workers at the VA/Vet center/medical center are more likely to use CPT and PE. Finally, inpatient and other settings were not significantly correlated with intervention use ($p>.05$).

Table 4—*Continued*

N=199	Intervention Use					
	CT	CBT	TF-CBT	CPT	PE	EMDR
Control variables						
Licensure level	.16*	.07	-.05	.11	.12	.21**
Years of exp.	.07	.08	.11	.05	-.04	.07
Years of trauma exp.	.12	.10	.07	.06	.02	.19*
% of trauma clients	-.01	.09	.20**	.17*	.04	.18**
CEU						
CT	.49***	.09	.09	.19**	-.12	.01
CBT	.19**	.43***	.04	.19**	-.01	.06
TF-CBT	.15*	.03	.63***	.24***	-.02	-.06
CPT	.18**	.10	.13	.55***	.21**	.05
PE	.09	.06	.06	.29***	.67***	.13
Training						
CT	.44***	.01	.07	.15*	-.01	-.06
CBT	.11	.25***	.07	.10	.12	-.03
TF-CBT	.04	.02	.50***	.14*	.05	-.09
CPT	.17*	.09	.08	.61***	.22**	.01
PE	.12	.06	-.01	.25***	.74***	.13
EMDR	.04	-.11	-.02	.02	.09	.79***
Independent variables						
Knowledge	.19**	.02	.02	-.05	.13	.18*
Efficacy	.12	.11	.22**	.20**	.17*	.27***

* $p<.05$. ** $p<.01$. *** $p<.001$.

Association Between Control Variables and Dependent Variables

Type of licensure, years of clinical experience, percent of treating clients with trauma, and years of trauma treatment experience. The type of licensure (LCSW versus. LMSW) was significantly weakly correlated with using CT $r_s(197)=.15$, $p<.05$ and EMDR $r_s(197)=.20$, $p<.01$ (see Table 4). Social workers with an LCSW license are more likely to use CT and EMDR than with an LMSW license. Social workers' years of experience were not significantly correlated ($p>.05$) with using EBIs (CT, CBT, TF-CBT, CPT, PE, and EMDR) but years in trauma treatment experience were significantly weakly correlated with using EMDR $r_s(197)=.19$, $p<.05$. However, if social workers were trained in EMDR, years of experience $r_s(197)=.17$, $p<.05$, years of trauma treatment experience $r_s(197)=.21$, $p<.01$, and percent of treating clients with trauma $r_s(197)=.16$, $p<.05$ were significantly weakly correlated. This finding suggests that social workers with more trauma experience are likely to use EMDR. The percent of trauma related clients that social workers treated was significantly weakly correlated with social workers using TF-CBT $r_s(197)=.20$, $p<.01$, CPT $r_s(197)=.16$, $p<.05$, and EMDR $r_s(197)=.18$, $p<.01$.

Continuing education and intervention use. Continuing education significantly correlated with EBI use (see Table 4). Continuing education in CT was significantly moderately correlated with CT $r_s(197)=.49$, $p<.001$ and weakly correlated with CPT $r_s(197)=.19$, $p<.01$ use. Conversely, social workers use of CT, significantly moderately correlated with them seeking continuing education in CT $r_s(197)=.49$, $p<.001$; weakly correlated with CBT $r_s(197)=.19$, $p<.01$; weakly correlated with TF-CBT $r_s(197)=.15$,

$p < .05$; and weakly correlated with CPT $r_s(197) = .18$, $p < .01$. Continuing education in CBT was significantly weakly correlated with CT $r_s(197) = .19$, $p < .01$; moderately correlated with CBT $r_s(197) = .43$, $p < .001$; and weakly correlated with CPT $r_s(197) = .19$, $p < .01$ use. Conversely, if social workers used CBT, they only sought continuing education in CBT $r_s(197) = .43$, $p < .001$. Continuing education in TF-CBT was significantly weakly correlated with CT $r_s(197) = .15$, $p < .05$; strongly correlated with TF-CBT $r_s(197) = .63$, $p < .001$; and weakly with CPT $r_s(197) = .24$, $p < .001$ use. Conversely, if social workers used TF-CBT, they only sought continuing education in TF-CBT $r_s(197) = .63$, $p < .001$. Continuing education in CPT was significantly weakly correlated with CT $r_s(197) = .18$, $p < .01$; strongly correlated CPT $r_s(197) = .55$, $p < .001$; and weakly correlated with PE $r_s(197) = .21$, $p < .01$ use. Conversely, if social workers used CPT, they sought continuing education ($p < .01$) in all the EBIs: CT $r_s(197) = .19$, $p = .006$; CBT $r_s(197) = .19$, $p < .007$; TF-CBT $r_s(197) = .24$, $p < .001$; CPT $r_s(197) = .55$, $p < .000$; and PE $r_s(197) = .29$, $p < .000$. Continuing education in PE was significantly weakly correlated with using CPT $r_s(197) = .29$, $p < .001$ and strongly correlated with PE $r_s(197) = .67$, $p < .001$. Conversely, if social workers used PE, they sought continuing education in CPT $r_s(197) = .21$, $p < .01$ and PE $r_s(197) = .67$, $p < .001$.

Training and intervention use. Training significantly correlated with EBI use (see Table 4). Training in CT was significantly moderately correlated with CT $r_s(197) = .44$, $p < .001$ and weakly correlated with CPT $r_s(197) = .15$, $p < .05$ use. Training in CBT was significantly weakly correlated with only using CBT $r_s(197) = .25$, $p < .001$. Training in TF-CBT was significantly strongly correlated with using TF-CBT $r_s(197) = .50$, $p < .001$ and

weakly correlated CPT $r_s(197)=.14$, $p<.05$. Conversely, if social workers used TF-CBT, they were only trained in TF-CBT ($p<.001$). Training in CPT was significantly weakly correlated with using CT $r_s(197)=.17$, $p<.05$; strongly correlated with CPT $r_s(197)=.61$, $p<.001$; and weakly correlated with PE $r_s(197)=.22$, $p<.01$. Conversely, if social workers used CPT, they were trained in CT $r_s(197)=.15$, $p<.05$; TF-CBT $r_s(197)=.14$, $p<.05$; CPT $r_s(197)=.61$, $p<.001$; and PE $r_s(197)=.25$, $p<.001$. Training in PE was significantly weakly correlated with social workers using CPT $r_s(197)=.25$, $p<.001$ and very strongly correlated with PE $r_s(197)=.74$, $p<.001$. Training in EMDR was only significantly very strongly correlated with social workers using EMDR $r_s(197)=.79$, $p<.001$. EMDR was the only interventions that was not significantly ($p>.05$) correlated with using or training in other interventions.

Bivariate Analysis of Clinical Setting, Control Variables and Independent Variables

Clinical setting. Certain settings were significantly correlated with knowledge of trauma and treatment efficacy (see Table 4). Counseling/community agency setting was weakly negatively correlated with knowledge of trauma $r_s(197)=-.22$, $p<.01$ and not significantly correlated with treatment efficacy. Private practice setting was significantly weakly correlated with knowledge of trauma $r_s(197)=.24$, $p<.001$ and moderately correlated with treatment efficacy $r_s(197)=.37$, $p<.001$. Outpatient/residential treatment center setting was not significantly correlated with knowledge of trauma but it was weakly negatively correlated with treatment efficacy $r_s(197)=.22$, $p<.01$. Inpatient setting was weakly negatively correlated with knowledge of trauma $r_s(197)=-.15$, $p<.05$ and not significantly correlated with treatment efficacy ($p>.05$). Finally, VA/vet center/medical

center and other settings were not significantly correlated ($p > .05$) with knowledge of trauma and treatment efficacy. Thus, social workers at a private practice setting had higher knowledge of trauma and treatment efficacy compared to social workers in other settings.

Type of licensure. Table 5 shows the results for the control and independent variables. Licensure type was statistically weakly correlated with knowledge of trauma $r_s(197) = .21$, $p < .01$ and moderately correlated with treatment efficacy $r_s(197) = .40$, $p < .001$. Thus, social workers with an LCSW have higher knowledge of trauma and treatment efficacy compared to social workers with an LMSW.

Years of experience. Years of experience were not significantly correlated ($p > .05$) with knowledge of trauma but it was moderately correlated with treatment efficacy $r_s(197) = .30$, $p < .001$. Years in trauma treatment experience were not significantly correlated with knowledge of trauma ($p > .05$) but it was significantly moderately correlated with treatment efficacy $r_s(197) = .47$, $p < .001$. Experience based on percent of trauma-related clients social workers treated was significantly weakly correlated with knowledge of trauma $r_s(197) = .24$, $p < .001$ and moderately correlated with treatment efficacy $r_s(197) = .41$, $p < .001$. This indicates that social workers who have higher caseloads of clients with trauma have higher knowledge of trauma and treatment efficacy.

Continuing education in CT, CBT, TF-CBT, CPT, and PE. Continuing education in CT, CBT, TF-CBT, CPT, and PE results show no significant correlation ($p > .05$) with knowledge of trauma (see Table 5). This suggests that social workers who seek continuing education in CT, CBT, TF-CBT, CPT, and PE have less knowledge of trauma.

However, continuing education in CT, CBT, TF-CBT, CPT, and PE results show significant correlation with treatment efficacy.

Table 5 Spearman Correlation Matrix: Bivariate Analysis of Control

Variables and Independent Variables

N=199	Knowledge of Trauma	Treatment Efficacy
Control Variables		
Licensure level	.21**	.39***
Clinical setting		
Coun/comm	-.22**	-.08
Private pract	.24***	.37***
OP/RTC	-.03	-.22**
Inpatient	-.15*	-.09
VA/Vet cntr	.12	.10
Other	.05	-.11
Years of exp.	-.01	.30***
Years of trauma exp.	.12	.47***
% of trauma clients	.24***	.41***
CEU		
CT	.02	.25***
CBT	-.02	.23***
TF-CBT	-.02	.26***
CPT	-.07	.16*
PE	.13	.26***
Training		
CT	.02	.26***
CBT	.02	.28***
TF-CBT	-.04	.27***
CPT	-.07	.14
PE	.14*	.24***
EMDR	.19**	.24***

*p<.05. **p<.01. ***p<.001.

Continuing education in CT $r_s(197)=.25$, $p<.001$; CBT $r_s(197)=.23$, $p<.001$; TF-CBT $r_s(197)=.26$, $p<.001$; CPT $r_s(197)=.16$, $p<.05$; and PE $r_s(197)=.26$, $p<.001$ were significantly weakly correlated with treatment efficacy. This indicates that social workers who seek continuing education in CT, CBT, TF-CBT, CPT, and PE have more treatment

efficacy than those who do not seek continuing education in the EBIs. Thus, social workers' perception is greater in treatment efficacy but not in knowledge of trauma, showing that information is not retained well through continuing education.

Training in CT, CBT, TF-CBT, CPT, PE, and EMDR. Training results show significant correlation with knowledge of trauma and treatment efficacy (see Table 5). Training in CT, CBT, TF-CBT, and CPT were not significantly correlated with knowledge of trauma ($p > .05$). However, training in PE $r_s(197) = .14$, $p < .05$ and EMDR $r_s(197) = .19$, $p < .01$ were significantly weakly correlated with knowledge of trauma. This indicates that the more the trauma focused the intervention is, the more social workers are able to retain knowledge of trauma information. Training in CPT was not significantly correlated with treatment efficacy ($p > .05$). Training in CT $r_s(197) = .26$, $p < .001$; CBT $r_s(197) = .28$, $p < .001$; TF-CBT $r_s(197) = .27$, $p < .001$; PE $r_s(197) = .24$, $p < .001$; and EMDR $r_s(197) = .24$, $p < .001$ were significantly weakly correlated with treatment efficacy. This indicates that social workers who are trained in CT, CBT, TF-CBT, PE, and EMDR have more treatment efficacy. Thus, social workers' perception is greater in treatment efficacy compared to knowledge of trauma, showing that information is not retained well through training compared to practice (trauma treatment efficacy perception).

Bivariate Analysis of Independent Variables and Dependent Variables

Knowledge of trauma. Table 4 shows the results of the bivariate analysis of the independent and dependent variables. Knowledge of trauma was not significantly correlated with using CBT, TF-CBT, CPT, and PE ($p > .05$). Knowledge of trauma was significantly weakly correlated with using CT $r_s(197) = .19$, $p < .01$ and EMDR

$r_s(197)=.18, p<.05$. This indicates that knowledge of trauma only correlates with using CT and EMDR interventions (i.e. the more knowledge of trauma social workers have, the more significantly they will use CT and EMDR compared to the other interventions).

Treatment efficacy. Treatment efficacy was not significantly correlated with using CT and CBT. Treatment efficacy was significantly weakly correlated with using TF-CBT $r_s(197)=.22, p<.01$; CPT $r_s(197)=.20, p<.01$; PE $r_s(197)=.17, p<.05$; and EMDR $r_s(197)=.27, p<.001$. This indicates that the more treatment efficacy social workers perceive, the more social workers will use TF-CBT, CPT, PE, and EMDR. Thus, based on social workers' knowledge of trauma and treatment efficacy, they will significantly use EMDR. The other interventions vary based on knowledge of trauma or treatment efficacy. However, social workers' perception of their treatment efficacy is a stronger indicator of their use of trauma-focused interventions than social workers' knowledge of trauma.

Bivariate Analysis of Control Variables

After the control variables (type of licensure, years of clinical experience, percent of treating clients with trauma, years of trauma treatment experience, continuing education in CT, CBT, TF-CBT, CPT, and PE and training in CT, CBT, TF-CBT, CPT, PE, and EMDR) and independent variables (trauma of knowledge and treatment efficacy) in Table 4 were analyzed, the continuing education variables (CT, CBT, TF-CBT, CPT, and PE) were dropped to test their influence on the other variables (training and independent variables; see Table 6). This was done to evaluate the interaction effect of continuing education and training even though statistically only EMDR collineared with

continuing education and training. Furthermore, this helped refine the control variables for the multivariate analyses.

The results of the control variable training (CT, CBT, TF-CBT, CPT, PE, and EMDR) and independent variables (knowledge of trauma and treatment efficacy) show subtle changes (see Table 6). Years of trauma treatment experience were significantly weakly correlated in using CT $r_s(211)=.14$, $p<.05$ and EMDR $r_s(211)=.22$, $p<.001$, whereas previously, years of trauma treatment experience was only significantly weakly correlated with using EMDR $r_s(197)=.19$, $p<.05$.

Table 6 Spearman Correlation Matrix: Bivariate Analysis without CE Control Variables

	Intervention Use						
	N=213	CT	CBT	TF-CBT	CPT	PE	EMDR
Control variables							
Licensure level		.16*	.07	-.05	.11	.12	.22**
Years of exp.		.07	.05	.12	.06	-.04	.09
Years of trauma exp.		.14*	.06	.07	.06	.02	.22***
% of trauma clients		.02	.11	.17*	.13	.05	.15*
Training							
CT		.45***	.03	.07	.15*	-.01	-.01
CBT		.11	.26***	.20	.11	.12	-.01
TF-CBT		.03	.02	.52***	.17*	.05	-.06
CPT		.16*	.08	.11	.63***	.22**	.04
PE		.11	.05	.04	.30***	.70***	.16*
EMDR		.07	-.10	-.01	.04	.08	.80***
Independent variables							
Knowledge of trauma		.20**	.01	.01	-.04	.12	.16*
Treatment efficacy		.15*	.12	.23***	.23***	.17*	.28***

* $p<.05$. ** $p<.01$. *** $p<.001$

Training in PE resulted in using CT $r_s(211)=.16$, $p<.05$, CPT $r_s(211)=.30$, $p<.001$, PE $r_s(211)=.70$, $p<.001$, and EMDR $r_s(211)=.16$, $p<.05$, whereas before training in PE was only significantly weakly correlated with using CPT $r_s(197)=.22$, $p<.001$, and very

strongly correlated with PE $r_s(197)=.74$, $p<.001$. Knowledge of trauma and training in PE resulted in an insignificant correlation ($p>.05$), whereas before knowledge of trauma was significantly weakly correlated with training in PE $r_s(197)=.14$, $p<.05$. Finally, treatment efficacy resulted in correlation changes. Treatment efficacy was significantly weakly correlated with using CT $r_s(211)=.15$, $p<.05$, and training in CPT $r_s(211)=.23$, $p<.001$, whereas before, CT use and training in CPT were not significantly correlated ($p>.05$). These subtle changes show the importance of continuing education as a control variable to determine accurately and precisely the estimate of knowledge of trauma and treatment efficacy predicting social workers' EBI use. Thus, as previously determined, only continuing education in EMDR will be dropped for the multivariate analyses.

Tests of Hypotheses: Bivariate Analysis

The first hypothesis stated that the greater licensed social workers' knowledge of trauma following graduation from a MSW program, the greater their use of evidence-based interventions will be. The second hypothesis stated that the greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be. A Spearman correlation was performed on the dependent and independent variables to determine their correlation ($p<.05$). A logistic regression was performed on the dependent variables (CT and EMDR) that were correlated with the independent variable (knowledge of trauma) to estimate the odds of social workers' using CT, CBT, TF-CBT, CPT, PE, and EMDR. This examined whether the independent variables are predictors for evidence-based intervention (EBI) use. The Wald test, a chi-squared statistics, was used to determine the statistical

significance of each coefficient (β) predictor in the model. A Wald statistical significance ($p < .05$) indicates the presence of a predictor.

Hypothesis 1

The greater licensed social workers' knowledge of trauma following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Table 7 shows the Spearman correlation matrix to determine which dependent variables were correlated with knowledge of trauma. Knowledge of trauma is only weakly correlated with using CT $r_s(232) = .21, p < .001$ and EMDR $r_s(232) = .15, p < .05$. This suggests that social workers with more knowledge of trauma are significantly more likely to use CT and EMDR for trauma treatment than the other interventions (CBT, TF-CBT, CPT, and PE) compared to social workers with less knowledge of trauma. Thus, a logistic regression analysis was performed on CT and EMDR.

Table 7 Spearman Correlation Matrix of Hypothesis 1

N=234	CT	CBT	TF-CBT	CPT	PE	EMDR
Knowledge	.21***	.06	.03	.01	.12	.15*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8 shows the Wald statistics of the logistic regression for the dependent variables (CT and EMDR) which were correlated with knowledge of trauma. Social workers' knowledge of trauma only predicted the use of CT ($e^b = 3.21, p = .001, 95\% \text{ CI } [1.60, 6.45]$) and EMDR ($e^b = 4.29, p = .03, 95\% \text{ CI } [1.14, 16.19]$). Therefore, the likelihood of social workers using EBI based on their knowledge of trauma is only significant for CT and EMDR. Thus, hypothesis 1 was partially supported. The more knowledge of trauma that social workers had following graduation from a MSW

program, the greater their use of two evidence-based interventions (3.21 more likely to use CT than not use it, and 4.29 more likely to use EMDR than not use it) but their knowledge of trauma had no impact on their use of the other four evidence-based interventions (CBT, TF-CBT, CPT, and PE).

Table 8 Estimates of Social Workers' Knowledge and EBI Use

	Knowledge of trauma			
	N=234	B(SE)	e ^b	95% CI
CT		1.16 (.35)	3.21***	1.60-6.45
EMDR		1.45 (.67)	4.29*	1.14-16.19

Note: *p<.05. **p<.01. ***p<.001; e^b=odds ratio, CI=confidence level.

Hypothesis 2

The greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Table 9 shows the Spearman correlation matrix to determine which dependent variables correlated with treatment efficacy. Social workers' treatment efficacy is weakly correlated with using all the EBIs: CT $r_s(258)=.15$, $p<.05$; CBT $r_s(258)=.17$, $p<.01$; TF-CBT $r_s(258)=.26$, $p<.001$; CPT $r_s(258)=.28$, $p<.001$; PE $r_s(258)=.17$, $p<.01$; and EMDR $r_s(258)=.28$, $p<.001$. Thus, social workers with greater treatment efficacy are significantly likely to use all the EBIs for trauma treatment than social workers with less treatment efficacy. A logistic regression analysis was performed on all the EBIs.

Table 9 Spearman Correlation Matrix of Hypothesis 2

	N=260	CT	CBT	TF-CBT	CPT	PE	EMDR
Efficacy		.15*	.17**	.26***	.28***	.17**	.28***

*p<.05. **p<.01. ***p<.001.

Table 10 presents the Wald statistic results of the logistic regression analysis. Social workers' treatment efficacy predicted social workers use of all the EBIs: CT ($e^b=1.13$, $p=.01$, 95% CI [1.02, 1.26]), CBT ($e^b=1.21$, $p=.000$, 95% CI [1.09, 1.35]), TF-CBT ($e^b=1.30$, $p=.000$, 95% CI [1.15, 1.48]), CPT ($e^b=1.48$, $p=.000$, 95% CI [1.24, 1.79]), PE ($e^b=1.45$, $p=.01$, 95% CI [1.08, 1.96]), and EMDR ($e^b=1.79$, $p=.000$, 95% CI [1.34, 2.39]). Therefore, the likelihood of social workers using EBI based on their perceived treatment efficacy is significant for all the EBIs. Thus, hypothesis 2 was supported. The greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be (1.13 more likely to use CT, 1.21 more likely to use CBT, 1.30 more likely to use TF-CBT, 1.48 more likely to use CPT, 1.45 more likely to use PE, and 1.79 more likely to use EMDR compared to social workers with less trauma treatment efficacy).

Table 10 Estimates of Social Workers' Efficacy and EBI Use

	Treatment Efficacy			
	N=260	β (SE)	e^b	95% CI
CT		.12 (.05)	1.13**	1.02-1.26
CBT		.19 (.05)	1.21***	1.09-1.35
TF-CBT		.26 (.06)	1.30***	1.15-1.48
CPT		.39 (.09)	1.48***	1.24-1.79
PE		.37 (.15)	1.45**	1.08-1.96
EMDR		.58 (.14)	1.79***	1.34-2.39

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Tests of Hypotheses: Multivariate Analysis

A multivariate analysis was conducted to assess if social workers' knowledge of trauma and trauma treatment efficacy predicts the use of evidence-based interventions with the control variables (type of licensure, years of clinical experience, percent of

treating clients with trauma, years of trauma treatment experience, continuing education in CT, CBT, TF-CBT, CPT, and PE and training in CT, CBT, TF-CBT, CPT, PE, and EMDR). This shows whether the control variables suppress the independent variables' capacity to predict the use of EBIs or not.

Table 11 Spearman Correlation Matrix for Control Variables, Independent Variables, and Dependent Variables

	Intervention Use						
	N=211	CT	CBT	TF-CBT	CPT	PE	EMDR
Control variables							
Licensure level		.15*	.07	-.05	.11	.12	.22***
Years of exp.		.07	.05	.12	.07	-.04	.09
Years of trauma exp.		.13	.06	.07	.07	.02	.22**
% of trauma clients		.02	.11	.18*	.14*	.05	.15*
CEU							
CT		.52***	.09	.08	.20**	-.11	.05
CBT		.20**	.45***	.05	.19**	-.01	.06
TF-CBT		.15*	.05	.62***	.25***	-.02	-.02
CPT		.19**	.11	.14*	.54***	.20**	.08
PE		.10	.07	.08	.30***	.66***	.16*
Training							
CT		.44***	.02	.08	.15*	-.01	-.01
CBT		.20	.26***	.10	.12	.12	-.01
TF-CBT		.04	.03	.52***	.17*	.05	-.06
CPT		.16*	.09	.11	.63***	.21**	.04
PE		.12	.05	.04	.29***	.70***	.16*
EMDR		.07	-.20	-.01	.03	.08	.80***
Independent variables							
Knowledge of trauma		.20**	.01	.01	-.04	.12	.16*
Treatment efficacy		.15*	.13	.22***	.23***	.17*	.28***

*p<.05. **p<.01. ***p<.001.

Table 11 shows the correlation results for the control variables (type of licensure, years of clinical experience, percent of treating clients with trauma, years of trauma treatment experience, continuing education in CT, CBT, TF-CBT, CPT, and PE and training in CT,

CBT, TF-CBT, CPT, PE, and EMDR), independent variables (knowledge of trauma and treatment efficacy), and dependent variables (CT, CBT, TF-CBT, CPT, PE, and EMDR). Those variables that were not significantly correlated with the dependent variables were not entered in the multivariate analysis. The Hosmer and Lemeshow goodness-of-fit test was used for the model fit (a large value of χ^2 [with small p-value <.05] indicates a poor fit for the data and a small value of χ^2 [with larger p-value closer to 1] indicates a good logistic regression model fit for the data). The Wald test, a chi-squared statistics, was used to determine the statistical significance of each coefficient (β) predictor in the model. A Wald statistical significance (p<.05) indicates the presence of a predictor.

Hypothesis 1

The greater licensed social workers' knowledge of trauma following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Multivariate Analysis: Knowledge of Trauma

Table 12 shows the Wald statistic results of the logistic regression for knowledge of trauma and CT use with the control variables (type of licensure, continuing education in CT, CBT, TF-CBT, CPT, and PE and training in CT, CBT, TF-CBT, CPT, PE, and EMDR). The Hosmer and Lemeshow goodness-of-fitness test results show that the knowledge of trauma and CT use with the control variables have a poor model fit $\chi^2(8, 221)=23.81, p=.002$. The model was improved by removing the control variables, continuing education in CT and training in CT, from the multivariate analysis (see Table 13). Thus, the Hosmer and Lemeshow goodness-of-fitness test results show that the

knowledge of trauma and CT use with the remaining control variables have a good model fit $\chi^2(8, 221)=3.57, p=.89$.

Table 12 Logistic Regression for Knowledge of Trauma and CT use
with Control Variables

	CT Use			
	N=221	β (SE)	e^b	95% CI
Knowledge of trauma		1.28 (.42)	3.59**	1.57-8.26
Control Variables				
License		.06 (.17)	1.06	.76-1.49
CEU				
CT		.03 (.01)	1.03**	1.01-1.06
CBT		-.01 (.01)	.98	.97-1.00
TF-CBT		.00 (.01)	1.00	.98-1.03
CPT		.01 (.02)	1.01	.97-1.06
Training				
CT		.04 (.01)	1.04**	1.01-1.08
CPT		.00 (.02)	1.00	.95-1.05

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Table 13 Logistic Regression for Knowledge of trauma and CT use—
remaining Control Variables

	CT Use			
	N=221	β (SE)	e^b	95% CI
Knowledge of trauma		1.23 (.39)	3.44**	1.58-7.50
Control variables				
License		.10 (.15)	1.10	.81-1.51
CEU				
CBT		.01 (.01)	1.01	1.00-1.02
TF-CBT		.01 (.01)	1.01	.99-1.06
CPT		.02 (.01)	1.02	.99-1.06
Training				
CPT		.01 (.02)	1.01	.97-1.05

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The Wald statistic results show that the remaining control variables do not suppress knowledge of trauma ($e^b=3.44, p=.002, 95\% \text{ CI } [1.58, 7.50]$) as a predictor for CT use

(see Table 13). This indicates that knowledge of trauma is a good predictor of CT use. Thus, the odds of social workers using CT based on knowledge of trauma are 3.44 times greater compared to social workers not using CT.

Table 14 shows the Wald statistic results of the logistic regression for knowledge of trauma and EMDR use with the control variables (type of licensure, years of trauma treatment experience, percent of treating clients with trauma, continuing education in PE, and training in PE, and EMDR). The Hosmer and Lemeshow goodness-of-fit test results show that knowledge of trauma and EMDR use with the control variables model have a good model fit $\chi^2(8, 217)=6.77, p=.56$. The Wald test show that knowledge of trauma was not statistically significant with the control variables ($p>.05$). Thus, knowledge of trauma for EMDR use is not a good predictor. This indicates that the control variables suppress the ability for knowledge of trauma ($p=.65$) to predict EMDR use.

Table 14 Logistic Regression for Knowledge of trauma and EMDR use with Control Variables

	EMDR Use			
	N=217	B (SE)	e ^b	95% CI
Knowledge of trauma		-.99 (2.20)	.37	.01-27.94
Control variables				
License		.92 (1.47)	2.51	.14-45.51
Years of trauma exp.		-.17 (.39)	.83	.39-1.82
Percent of trauma clients		-.01 (.03)	.98	.93-1.05
CEU				
PE		.03 (.19)	1.03	.71-1.50
Training				
PE		-.08 (.17)	.92	.66-1.29
EMDR		.302 (.09)	1.35**	1.14-1.61

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b=odds ratio, CI=confidence level.

The model was further explored based on the Wald's statistics to determine which control variable suppressed knowledge of trauma as a predictor of EMDR use (See Table 15). The insignificant control variables were removed from the equation (license type, years of trauma experience, percent of trauma clients, CEU in PE and training in PE) and the results show that EMDR training ($e^b=1.28$, $p=.000$, 95% CI [1.15, 1.43]) is the primary predictor for EMDR use (Table 15). Therefore, the control variables are a good fit for this model (knowledge of trauma and EMDR use). Thus, social workers' knowledge of trauma does not predict the use of EMDR as the control variables (license type, years of trauma experience, percent of trauma clients, CEU in PE and training in PE) suppress EMDR use, and the odds of social workers' using EMDR based on their training in EMDR is 1.28 more likely than social workers who are not trained in EMDR.

Table 15 Logistic Regression for Knowledge of trauma and EMDR use—only EMDR Training as Control Variable

	EMDR Use			
	N=221	β (SE)	e^b	95% CI
Knowledge of trauma		-1.19 (1.86)	.30	.01-11.76
Control variable				
Training				
EMDR		.25 (.05)	1.28***	1.15-1.43

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Hypothesis 2

The greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be.

Multivariate Analysis: Treatment Efficacy

Table 16 shows the Wald statistic results of the logistic regression for treatment efficacy and CT use with the control variables (type of licensure, continuing education in CT, CBT, TF-CBT, and CPT and training in CT, and CPT). The Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and CT use with the control variables model have a poor model fit $\chi^2(8, 246)=28.06$, $p=.000$. The model was further explored based on the Wald's statistics in order to improve the model fit. Statistically significant control variables were removed from the equation (CEU in CT and training in CT) and the model did not improve $\chi^2(8, 246)=17.18$, $p=.028$ significantly, further establishing a poor model fit with the control variables. The model was also explored with the statistically significant control variables, CEU in CT and training in CT and the model fit did not improve $\chi^2(8, 247)=26.61$, $p=.001$. Thus, the control variables are not a good fit for the data.

Table 16 Logistic Regression for Treatment Efficacy and CT use with Control Variables

	CT Use			
	N=246	β (SE)	e^b	95% CI
Treatment efficacy		-.01 (.06)	.98	.87-1.12
Control variables				
License		.05 (.16)	1.05	.77-1.44
CEU				
CT		.02 (.01)	1.02*	1.01-1.05
CBT		-.01 (.01)	.99	.98-1.01
TF-CBT		.00 (.01)	1.00	.98-1.02
CPT		.01 (.02)	1.01	.97-1.06
Training				
CT		.04 (.01)	1.04*	1.01-1.07
CPT		.00 (.02)	1.00	.96-1.05

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Therefore, the control variables do not suppress treatment efficacy (see Table 17). Thus, the Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and CT use without the control variables model have a good model fit $\chi^2(8, 260)=6.90, p=.548$.

Table 17 Logistic Regression for Treatment Efficacy and CT use without Control Variables

	CT Use			
	N=260	β (SE)	e^b	95% CI
Treatment efficacy		.13 (.05)	1.13**	1.02-1.26

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The Wald test shows that treatment efficacy is a good predictor of CT use ($e^b=1.13, p=.01, 95\% \text{ CI } [1.02, 1.26]$). Thus, the odds of social workers using CT based on treatment efficacy are 1.13 times greater compared to social workers not using CT.

Table 18 shows the Wald statistic results of the logistic regression for treatment efficacy and TF-CBT use with the control variables (percent of treating clients with trauma, continuing education in TF-CBT and CPT, and training in TF-CBT). The Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and TF-CBT use with the control variables have a poor model fit $\chi^2(8, 243)=35.00, p=.000$. However, based on the Wald's statistics, the statistically significant control variable was removed from the equation (CEU in TF-CBT) and the model improved $\chi^2(8, 243)=11.73, p=.164$. After the CEU in TF-CBT (control variable) was removed, the Wald statistic results show that treatment efficacy ($e^b=1.19, p=.015, 95\% \text{ CI } [1.04, 1.38]$) is a good predictor for TF-CBT use (see Table 19).

Table 18 Logistic Regression for Treatment Efficacy and TF-CBT use with Control Variables

	TF-CBT Use			
	N=243	β (SE)	e ^b	95% CI
Treatment Efficacy		.11 (.08)	1.11	1.00-1.31
Control variables				
% of trauma clients		.01 (.01)	1.00	1.00-1.02
CEU				
TF-CBT		.08 (.01)	1.08***	1.06-1.12
CPT		-.03 (.01)	.97	.94-1.01
Training				
TF-CBT		-.01 (.49)	.99	.96-1.01

Note: *p<.05. **p<.01. ***p<.001; e^b=odds ratio, CI=confidence level.

Therefore, the control variables are a good fit for this data (treatment efficacy and TF-CBT use) except for CEU in TF-CBT. Thus, the control variables do not suppress treatment efficacy (e^b=1.19, p=.015, 95% CI [1.04, 1.38]) as a predictor of TF-CBT use (see Table 19). This indicates that treatment efficacy is a good predictor of TF-CBT use. Thus, the odds of social workers' using TF-CBT based on treatment efficacy are 1.19 times greater compared to social workers not using TF-CBT.

Table 19 Logistic Regression for Treatment Efficacy and TF-CBT use—
with remaining Control Variables

	TF-CBT Use			
	N=243	β (SE)	e ^b	95% CI
Treatment efficacy		.11 (.07)	1.19**	1.04-1.38
Control variables				
% of trauma clients		.01 (.01)	1.00	1.00-1.02
CEU				
CPT		.01 (.01)	1.01	1.00-1.04
Training				
TF-CBT		.01 (.01)	1.00	.99-1.03

Note: *p<.05. **p<.01. ***p<.001; e^b=odds ratio, CI=confidence level.

Table 20 shows the Wald statistic results of the logistic regression for treatment efficacy and CPT use with the control variables (percent of treating clients with trauma, continuing education in CT, CBT, TF-CBT, CPT, and PE and training in CT, TF-CBT, CPT, and PE). The Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and CPT use with the control variables have a good model fit $\chi^2(8, 243)=3.83, p=.920$. The result shows that treatment efficacy ($e^b=1.42, p=.012, 95\% \text{ CI } [1.08, 1.88]$) is a good predictor of CPT use. In addition, there were three statistically significant control variables: CEU in TF-CBT ($e^b=1.04, p=.030, 95\% \text{ CI } [1.00, 1.09]$), training in TF-CBT ($e^b=.93, p=.046, 95\% \text{ CI } [.88, 1.00]$), and training in CPT ($e^b=1.17, p=.000, 95\% \text{ CI } [1.09, 1.26]$).

Table 20 Logistic Regression for Treatment Efficacy and CPT use with
Control Variables

	CPT Use			
	N=243	β (SE)	e^b	95% CI
Treatment Efficacy		.35 (.14)	1.42*	1.08-1.88
Control variables				
% of trauma clients		.00 (.01)	1.00	.99-1.02
CEU				
CT		-.01 (.01)	.99	.97-1.02
CBT		.00 (.01)	1.00	.98-1.03
TF-CBT		.04 (.02)	1.04*	1.00-1.09
CPT		.03 (.02)	1.03	.99-1.08
PE		-.03 (.03)	.96	.90-1.03
Training				
CT		-.05 (.02)	.94	.90-1.01
TF-CBT		-.06 (.03)	.93*	.88-1.00
CPT		.15 (.03)	1.17***	1.09-1.26
PE		.04 (.04)	1.04	.96-1.14

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The model was further explored based on the Wald statistics to determine the impact of these control variables (CEU in TF-CBT, training in TF-CBT and CPT). These control variables were removed from the equation (see Table 21). The results show a slight change in the Hosmer and Lemeshow goodness-of-fitness test $\chi^2(8, 243)=5.445$, $p=.709$. This changed Wald statistics in continuing education in CPT ($p=.000$) and training in PE ($p=.023$; see Table 21). In addition, based on this model modification, training in CPT accounts for continuing education in CPT and it accounts for training in PE.

Table 21 Logistic Regression for Treatment Efficacy and CPT use
without Significant Control Variables

	CPT Use			
	N=243	β (SE)	e^b	95% CI
Treatment Efficacy		.29 (.12)	1.34*	1.06-1.71
Control variables				
% of trauma clients		.00 (.01)	1.001	.99-1.02
CEU				
CT		-.01 (.01)	1.00	.97-1.02
CBT		-.00 (.01)	1.00	.98-1.02
CPT		.09 (.02)	1.10***	1.05-1.14
PE		-.05 (.04)	.95	.89-1.02
Training				
CT		-.01 (.02)	.99	.95-1.03
PE		.09 (.04)	1.09*	1.01-1.18

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Furthermore, continuing education and training in TF-CBT were multiplied to determine their impact; the results show that CEU and training in TF-CBT were not statistically significant. This show that even with the model modification, treatment efficacy ($e^b=1.34$, $p=.016$, 95% CI [1.06, 1.71]) is a predictor for CPT use. This indicates that

social workers' treatment efficacy predicts the use of CPT regardless of the control variables. Thus, the odds of social workers using CPT based on treatment efficacy are 1.34 times greater compared to social workers not using CPT.

Table 22 shows the Wald statistic result of logistic regression for treatment efficacy and PE use with the control variables (continuing education in CPT and PE, and training in CPT and PE). The Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and PE use with the control variables model have a good fit $\chi^2(8, 246)=5.174, p=.739$. The Wald statistic results show that treatment efficacy is not a predictor ($p=.68$) of PE use with this model. Therefore, the control variables suppress treatment efficacy as a predictor.

Table 22 Logistic Regression for Treatment Efficacy and PE use with Control Variables

	PE Use			
	N=246	β (SE)	e^b	95% CI
Treatment Efficacy		-.07 (.18)	.92	.64-1.34
Control variables				
CEU				
CPT		-.09 (.06)	.90	.79-1.04
PE		.19 (.08)	1.21*	1.04-1.42
Training				
CPT		-.01 (.05)	.99	.90-1.10
PE		.16 (.05)	1.17**	1.05-1.31

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The model was further explored based on the Wald statistics to determine the impact of the control variables (see Table 23). The statistically significant control variables were removed from the equation (CEU in PE and training in PE).

Table 23 Logistic Regression for Treatment Efficacy and PE use without Significant Control Variables

	PE Use			
	N=246	β (SE)	e ^b	95% CI
Treatment Efficacy		.34 (.16)	1.40*	1.03-1.92
Control variables				
CEU				
CPT		.00 (.01)	1.00	.97-1.04
Training				
CPT		.05 (1.26)	1.05*	1.00-1.10

Note: *p<.05. **p<.01. ***p<.001; e^b=odds ratio, CI=confidence level.

The results show a change in the Hosmer and Lemeshow goodness-of-fitness test $\chi^2(8, 246)=13.42, P=.098$, decreasing the goodness-of-fit model but not significantly. This changed Wald's statistics in treatment efficacy ($p=.03$) and training in CPT ($p=.04$), making it statistically significant. Thus, continuing education and training in PE controls treatment efficacy ($p>.05$; see Table 22) for PE use. However, the interaction effects of continuing education and training in PE were explored; the results show that training in PE controls treatment efficacy. Therefore, treatment efficacy is not a predictor of PE use but training in PE ($e^b=1.25, p=.000, 95\% \text{ CI } [1.13, 1.38]$) is the predictors of PE use.

Table 24 shows Wald statistic of the logistic regression for treatment efficacy and EMDR use with the control variables (type of licensure, years of trauma treatment experience, percent of treating clients with trauma, continuing education in PE, and training in PE and EMDR). The Hosmer and Lemeshow goodness-of-fitness test results show that treatment efficacy and EMDR use with the control variables model have an

excellent fit $\chi^2(8, 244)=2.706, p=.951$. The Wald statistic results show that treatment efficacy is not a predictor ($p=.39$) of EMDR use with this model.

Table 24 Logistic Regression for Treatment Efficacy and EMDR use with Control Variables

	EMDR Use			
	N=244	β (SE)	e^b	95% CI
Treatment Efficacy		.43 (.51)	1.54	.57-4.15
Control variables				
License		.64 (1.57)	1.90	.09-41.12
Years of trauma exp.		-.08 (.36)	.92	.46-1.88
% of trauma clients		-.004 (.03)	1.00	.95-1.05
CEU				
PE		-.02 (.22)	.98	.64-1.35
Training				
PE		-.03 (.17)	.97	.70-1.35
EMDR		.27 (.07)	1.31***	1.14-1.49

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Table 25 Logistic Regression for Treatment Efficacy and EMDR use without Significant Control Variables

	EMDR Use			
	N=244	β (SE)	e^b	95% CI
Treatment Efficacy		.34 (.18)	1.41	.99-1.99
Control variables				
License		1.00 (.53)	2.70	.99-7.57
Years of trauma exp.		.07 (.13)	1.08	.83-1.39
% of trauma clients		.01 (.01)	1.01	.99-1.03
CEU				
PE		-.05 (.04)	.95	.88-1.02
Training				
PE		.07 (.04)	1.07	.98-1.16

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The model was further explored based on the Wald statistics to determine the impact of the control variable (see Table 25). The statistically significant control variable

was removed from the equation (training in EMDR). The results show a change in the Hosmer and Lemeshow goodness-of-fit test fit $\chi^2(8, 244)=4.175$, $p=.841$, a slight decrease in the goodness-of-fit model. This model adjustment did not change treatment efficacy's statistical significance ($p=.054$), further indicating that the control variables suppress treatment efficacy as a predictor for EMDR use. Thus, training in EMDR ($e^b=1.31$, $p=.000$, 95% CI [1.14, 1.49]) determines EMDR use.

Table 26 Multivariate Analysis Summary of Knowledge of trauma and EBI Use

	CT Use N=221		EMDR Use N=217	
	e^b	95% CI	e^b	95% CI
Knowledge of trauma	3.44**	1.58-7.50	.37	.01-27.94
Control variables				
License	1.10	.81-1.51	2.51	.14-45.51
Years of trauma exp.	_____	_____	.83	.39-1.82
% of trauma clients	_____	_____	.98	.93-1.05
CEU				
CBT	1.01	1.00-1.02	_____	_____
TF-CBT	1.01	.99-1.06	_____	_____
CPT	1.02	.99-1.06	_____	_____
PE	_____	_____	1.03	.71-1.50
Training				
TF-CBT	_____	_____	_____	_____
CPT	1.01	.97-1.05	_____	_____
PE	_____	_____	.92	.66-1.29
EMDR	_____	_____	1.35***	1.14-1.61

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

Multivariate Analysis Summary

This summary includes the results from the logistic regression analyses with a good model fit based on the Hosmer and Lemeshow goodness-of-fit model ($p>.05$).

Table 26 shows the Wald statistic results for knowledge of trauma, CT and EMDR use with the control variables. Thus, knowledge of trauma only predicts CT use

($p < .01$) but not EMDR use ($p > .05$) with the control variables. Knowledge of trauma predicts 77% in social workers using CT and the control variables control for knowledge of trauma ($p = .652$; see Table 14) in EMDR use. In addition, knowledge of trauma is not a predictor of CBT, TF-CBT, CPT, PE, and EMDR use ($p > .05$; see Table 7).

Table 27 shows the result for treatment efficacy and the use of evidence-based interventions (CT, TF-CBT, CPT, PE, and EMDR) with the control variables. Thus, treatment efficacy is a predictor for CT ($e^b = 1.13$, $p = .019$, 95% CI [1.02, 1.26]), TF-CBT ($e^b = 1.19$, $p = .015$, 95% CI [1.04, 1.38]), and CPT ($e^b = 1.42$, $p = .012$, 95% CI [1.08, 1.88]) use.

Table 27 Multivariate Analysis Summary of Treatment Efficacy and EBI Use

	CT N=260		TF-CBT N=243		CPT N=243	
	e^b	95% CI	e^b	95% CI	e^b	95% CI
Treatment efficacy	1.13**	1.02-1.26	1.19*	1.04-1.38	1.42*	1.08-1.88
Control variables						
License	_____	_____	_____	_____	_____	_____
Years of trauma exp.	_____	_____	_____	_____	_____	_____
% of trauma clients	_____	_____	1.00	1.00-1.02	1.00	.99-1.02
CEU						
CT			_____	_____	.99	.97-1.02
CBT			_____	_____	1.00	.98-1.04
TF-CBT			_____	_____	1.04*	1.00-1.09
CPT			1.01	.99-1.04	1.03	.99-1.08
PE	_____	_____	_____	_____	.96	.90-1.03
Training						
CT		_____	_____	_____	.94	.90-1.01
TF-CBT	_____	_____	1.00	.99-1.03	.93*	.88-1.00
CPT			_____	_____	1.17***	1.09-1.26
PE	_____	_____	_____	_____	1.04	.96-1.14
EMDR	_____	_____	_____	_____	_____	_____

Note: * $p < .05$. ** $p < .01$. *** $p < .001$; e^b =odds ratio, CI=confidence level.

Treatment efficacy predicted 53% of social workers' use of CT, 54% of their use of TF-CBT, and 59% of their use of CPT. In addition, treatment efficacy (with the control

variables) is not a predictor of CBT, PE, and EMDR use ($p>.05$; see Table 7 and Table 24).

Results of this study on the multivariate analysis partially supported hypothesis 1 and 2. Social workers' higher knowledge of trauma and trauma treatment efficacy following graduation from a MSW program partially predicts the use of evidence-based interventions.

Table 27—*Continued*

	PE Use N=246		EMDR Use N=244	
	e^b	95% CI	e^b	95% CI
Treatment efficacy	.92	.64-1.34	1.54	.57-4.15
Control variables				
License	_____	_____	1.90	.09-41.12
Years of trauma exp.	_____	_____	.92	.46-1.88
% of trauma clients	_____	_____	1.00	.95-1.05
CEU				
CBT	_____	_____	_____	_____
TF-CBT	_____	_____	_____	_____
CPT	.90	.79-1.04	_____	_____
PE	1.21*	1.04-1.42	.98	.64-1.35
Training				
TF-CBT	_____	_____	_____	_____
CPT	.99	.90-1.10	_____	_____
PE	1.17**	1.05-1.31	.97	.70-.1.35
EMDR	_____	_____	1.31***	1.14-1.49

Note: * $p<.05$. ** $p<.01$. *** $p<.001$; e^b =odds ratio, CI=confidence level.

The results show that continuing education and training are strong suppressors for the independent variables (knowledge of trauma and treatment efficacy). For example, the bivariate analysis of the dependent variables (CT, CBT, TF-CBT, CPT, PE, and EMDR) and independent variables (treatment efficacy) resulted in significant correlates.

However, with the control variables (type of licensure, years of trauma treatment experience, percent of treating clients with trauma, continuing education in CT, CBT, TF-

CBT, CPT, and PE and training in CT, CBT, TF-CBT, CPT, PE, and EMDR), treatment efficacy only predicted three dependent variables (see Table 27). Furthermore, years of experience and years of trauma experience does not statistically significantly affect knowledge of trauma and trauma treatment efficacy in predicting social workers' use of evidence-based interventions.

Chapter 6

Discussion

In this chapter I discuss the findings from this study's results. First, I discuss the general findings related to the hypotheses. Second, I discuss the limitations of the study. Third, I discuss the social work implications of the findings. Finally, I conclude with discussing the tested hypotheses.

General Findings

Although the correlations of some variables are weak, the findings of the study suggest that there are several important variables that influence social workers' knowledge of trauma, treatment efficacy and use of evidence-based interventions. The variables that were found to be most influential include practice setting, demographics, experience, and continuing education and training. In addition, the tested hypotheses indicate that knowledge of trauma and treatment efficacy can predict the use of evidence-based interventions

Social Workers' Practice Setting

This study found that practice settings influenced the evidence-based interventions that social workers' used when treating clients with trauma. The practice settings with the lowest utilization of trauma-focused evidence-based interventions were counseling/community agencies, outpatient/residential centers, and inpatient settings. Specifically, the counseling/community agency setting was weakly negatively correlated with the use of PE and EMDR interventions. This suggests that social workers at this setting do not favor the use of PE and EMDR. Outpatient/residential treatment center

settings were also weakly negatively correlated with EMDR use. The inpatient setting was not correlated with any intervention use, which suggests that social workers in inpatient settings may use fewer evidence-based interventions for their clients. On the other hand, social workers practicing at VA/Vet center/medical center and those in private practice use more trauma-focused evidence-based intervention than social workers in other settings. The finding that VA/Vet center/medical center setting was weakly positively correlated with CPT and PE use suggests that the VA social workers use what they are trained in as the VA trains social workers to use PE and CPT.

The Institute of Medicine (2007) contends that prolonged exposure therapy is the only intervention with sufficient empirical evidence to treat PTSD. In this study, only the private practice setting weakly positively correlated with EMDR use. Perhaps social workers in private settings use EMDR more than their counterparts in other settings because they have the freedom to decide which interventions to choose and are aware of the empirical evidence of EMDR to treat PTSD.

In addition to the influence that practice settings had on the interventions social workers use, practice settings had a notably impact on social workers' knowledge of trauma and treatment efficacy. Practicing in a counseling/community agency setting and inpatient setting weakly negatively correlated with social workers' knowledge of trauma; practicing social work at an outpatient/residential treatment center was not related to knowledge of trauma. Practicing social work in a counseling/community agency was not related to treatment efficacy but practicing in an outpatient/residential treatment center setting was weakly negatively correlated with treatment efficacy. However, working in a

private practice setting was significantly weakly correlated with knowledge of trauma and moderately correlated treatment efficacy. These findings suggest that social workers in private practice have greater knowledge of trauma and treatment efficacy compared to social workers practicing in counseling/community agency settings. Social workers in private practice most likely have the incentive to ensure their intervention use is effective because client satisfaction with treatment is needed to be high in order for the client to continue attending weekly sessions. In contrast, social workers in counseling/community agency and both inpatient and outpatient treatment settings may be guided by agency policies and procedures that have to focus on meeting funding specifications versus client outcomes and client satisfaction. Additionally, social workers in counseling/community agency settings may have few opportunities to receive specialized training to learn new interventions.

It is important to especially note that despite its utilization of trauma-focused EBIs, the VA/Vet center/medical center setting was not significantly correlated with knowledge of trauma and treatment efficacy even though a majority, if not all, veterans receiving service have some type of trauma. This suggests that utilization of an evidence-based intervention is not necessarily related to knowledge of trauma and treatment efficacy. It may be the combination of training in an intervention and knowledge about the etiology of trauma along with using the intervention that may be the dynamic trio that produces the best treatment outcome. This may help insure that social workers apply an intervention precisely based on the client's symptomology addressing more specifically his or her needs instead of generally applying an intervention with disregard to the

client's symptoms. Thus, my findings concur with Lucock et al.'s (2006) conclusion that social workers' low utilization of research and evidence might be related to their practice setting.

Social Workers' Demographics

Although no demographic variables in the study related to knowledge of trauma, treatment efficacy or the use of the various evidence-based interventions, some demographic variables are important to note. The majority of respondents in this study were from metropolitan areas (69%) and few were from rural communities (7%). Since the survey used in the study was trauma trained social workers, the relatively small number of participants from rural communities suggests that few social workers in rural communities have had trauma training. Other studies too have found that rural areas are less likely to have social workers and therapists specifically trained in trauma treatment (Clark et al., 2012; Robinson et al., 2012). The consequence of having fewer social workers in these rural communities is a disservice to many clients who need it. For example, many veterans (1.3 million in Texas, of which 28.9% are in Killeen) may likely live in rural areas because of their preference to get away from metropolitan areas to decrease the exacerbation of their traumatic symptoms (through sound, smell, and sight triggers that maintain a higher level of stress). Thus, trauma trained practitioners in rural areas is necessary, if one is to provide effective trauma treatment. In addition, the fact that rural areas have less trauma trained practitioners and more residential traumas is a concern as a higher level of trauma expertise is needed based on the number of traumas and years that clients go without trauma treatment (Clark et al., 2012; Wang, Berglund,

Olfcon, & Kessler, 2004). Thus, more social workers and increased trauma training for these social workers are needed in rural areas to address this complex service gap as the lack of trauma expertise promulgates clients' traumatic symptoms since resources (trauma-expert practitioners) are not available to provide access to services needed.

The findings in this study suggest that there is a language barrier for social workers providing trauma treatment in Spanish. Only 26% of participants in this study spoke Spanish, but according to the US Census (2010), 37.6% of the population speaks Spanish in the US and 38.2% speaks Spanish in Texas. The Hispanic population (18.7%) is the largest growing demographic group in the US. Therefore, the need to address client's traumatic symptoms is widening even further. Trauma treatment requires an in-depth perception of symptomology and high precision in differentiating causes of symptoms (e.g. sleep disturbances related to trauma versus grief or anxiety), but a language barrier can increase misinterpretations or misunderstandings between client and social worker as the client gives their trauma narrative.

Social Workers' Experience

The practice characteristics of social workers in this study indicate that the more social workers treated trauma-related clients, the more they used evidence-based trauma-focused interventions. This finding concurs with the literature (Gray, Elhai, & Schmidt, 2007; Rosen et al., 2004). Furthermore, the finding that as social workers' knowledge and efficacy in trauma treatment increased, their use of trauma-focused interventions increased is also supported in the literature (Gray, Elhai, & Schmidt, 2007; Katz et al., 2006; Sprang, Craig, & Clark, 2008). This finding is similar to Craig and Sprang's

(2010a) findings that caseloads with a higher percentage of PTSD significantly predicted use of EBP. Years of experience alone were not sufficient to influence more training in evidence-supported interventions as reported in Allen, Gharagozloo and Johnson's (2012), and Craig and Sprang's (2010a) studies.

In this study, years of experience and years of trauma treatment experience were not significantly correlated with knowledge of trauma. This finding supports the finding of McKenzie and Smith (2006) that found years of experience to be negatively correlated with knowledge of trauma. However, in this study, years of experience and years of trauma treatment experience were significantly moderately correlated with treatment efficacy. Experience based on percent of trauma-related clients social workers treated was significantly weakly correlated with knowledge of trauma and significantly moderately correlated with treatment efficacy. Thus, these findings suggest that the best measure of social workers' knowledge of trauma and treatment efficacy may be the percentage of time with trauma-related clients and not years of general social work experience. The percentage of time spent treating clients with trauma indicates social workers' level of knowledge and efficacy. Those who spend more time treating clients with trauma increase their knowledge of trauma and treatment efficacy as they learn how to improve their skills through practice. This also supports Couineau and Forbes (2011) findings that social workers' level of confidence and skills significantly improves trauma treatment outcomes as they use trauma-focused interventions. Furthermore, these findings indicate that practice enhances treatment outcomes. This is an example of the latest research findings in neuroscience of the neurobiological changes that occur with

learning—neural pathways are strengthened through practice as the utilization of neural networks increases strength of neural connectivity (Wittrock, 1992).

Continuing Education, Training, and Intervention Use

The findings in this study further differentiate Craig and Sprang's (2010a) findings that specialized training in trauma significantly predicted use of EBP. In this study, the more social workers sought continuing education in the use of a specific intervention, the more they used that intervention. However, social workers were found to seek continuing education in interventions they already used. This suggests that using an intervention indicates that social workers will seek continuing education in that intervention. For example, social workers who reported using CBT only sought continuing education and training in CBT. This frequent mono-intervention use and training indicates that once social workers become used to a specific intervention they do not change to other interventions. Thus, social workers' intervention use is influenced further by their training and continuing education. As opposed to CBT and EMDR use, social workers reporting CPT use significantly reported that they sought continuing education in all of the other interventions. Finally, social workers who sought continuing education in PE were significantly more likely to use PE and CPT. This indicates that social workers either seeking continuing education or using PE are likely to use CPT and PE. This provides further support for the conclusion that intervention use becomes generally static and narrow as training and continuing education influences intervention use, with the exception of CPT.

Although many social workers reported using CBT (57%), similar to the study in Becker, Zayfert, and Anderson (2004; 76% used CBT; Cook et al., 2010), training in CBT had no significant correlation with knowledge of trauma. This suggests that training in CBT might not be specific enough for trauma treatment and the findings in this study indicate that social workers do not seek further training in other interventions if they are trained in CBT (Cook et al., 2010; van Minnen, Hendriks, & Olf, 2010). This shows the influence of social work graduate schools since CBT is the primary intervention taught (Weissman et al, 2006). Hence, this research study suggests that social work graduate schools are well positioned to influence social work practitioners to become more effective trauma-informed practitioners by adding trauma components to their curricula.

Tested Hypotheses

This study specifically investigated social workers' knowledge of trauma and their perceived trauma treatment efficacy with clients who have experienced traumatic events and whether social workers' knowledge of trauma and treatment efficacy can predict their use of the following evidence-based interventions: CT, CBT, TF-CBT, CPT, PE, and EMDR. This section covers the results of the tested hypotheses.

Hypothesis 1

The greater licensed social workers' knowledge of trauma following graduation from a MSW program, the greater their use of evidence-based interventions will be. This hypothesis was supported for two interventions: CT and EMDR. The findings indicate that knowledge of trauma can only predict social workers' use of CT and EMDR. However, the best predictor for social workers' use of EMDR is training in EMDR. This

finding suggests that social workers' knowledge of trauma may not be sufficiently strong enough to predict their use of other evidence-based interventions. However, knowledge of trauma appears to differentiate between social workers who use evidence-based interventions and those who do not use evidence-based interventions. In addition, knowledge of trauma further differentiates social workers who have more trauma-focused intervention training from social workers who have less trauma-focused intervention training. For example, the best predictor for EMDR use is training. This indicates that training provides a higher knowledge base of that particular intervention and a general knowledge base about trauma since it is a trauma-focused intervention. Therefore, knowledge of trauma and training go hand in hand, positively correlating. This finding also suggests that social workers are not using interventions of which they have little knowledge. This finding is crucial to social work practice since knowledge can increase self-efficacy—and thus, increase social workers actual use of trauma-focused interventions.

Hypothesis 2

The greater licensed social workers' trauma treatment efficacy following graduation from a MSW program, the greater their use of evidence-based interventions will be. The findings of this study supported this hypothesis for all the evidence-based interventions (CT, CBT, TF-CBT, CPT, PE, CPT, and EMDR). The findings indicate that social workers' trauma treatment efficacy predicted their use of all the evidence-based interventions (EBIs) in this study. However, in the case of social workers' use of CBT, PE, and EMDR, training in CBT, PE, and EMDR is a better predictor than treatment

efficacy. In addition to finding that treatment efficacy predicts trauma-focused EBI use in trauma treatment, this study also found that trauma treatment efficacy increases social workers' use of other EBIs in trauma treatment. This is similar to van Minnen, Hendriks, and Olff's (2010) findings that increased training in a trauma-focused intervention was associated with lower preference for supportive counseling (a non-EBT), providing more evidence for efficacy in trauma treatment.

Limitations of Study

Sampling Methodology

The results of this study are limited to social workers in Texas. In addition, the demographic and geographic sample is not as diverse as the social work demographic population in Texas. For example, the percent of African-Americans (4%) who participated were very low and the majority of the participants were from the Dallas-Fort Worth area (25%). Thus, a selection bias might be an issue for this study in spite of using the NASW/TX member listserv. A better approach might have been randomly selecting participants from the Texas State Board of Social Worker Examiners (TBSWE) licensee list, which could possibly lead to different results than this study. Another problem with using the NASW/TX listserv was that participants were not screened. The email regarding the survey was sent to all the NASW/TX resulting in some confusion from participants because the survey did not apply to them, e.g. LBSW or academician participants. This might also indicate that participants from this listserv are numb to responding to survey research, increasing finding inaccuracy. Furthermore, the survey was electronic, which had some technical problems, and there is a possibility of more

individual electronic problems that were not reported or observed. Although the response rate is low (approximately 13%, and 533 starting the survey but not completing it), it is within norm for email surveys (Constant Contact, 2012)

Measurement Methodology

The instruments used in this study were all based on self-reports in a naturalistic setting. This is a mono-method bias problem. There is no triangulation of data in methodology as it lacked variety use of measurement modality. This decreases finding accuracy and increases social desirability, limiting inferences. This might be the reason for the discrepancy between the two independent variables: knowledge of trauma and treatment efficacy. Based on the treatment efficacy scale, participants' findings show that they are more likely to use all the interventions and the control variables had minimal effect. However, based on the trauma knowledge scale, participants' findings shows that they were less likely to use EBIs and the control variables had higher effects on the outcome of whether participants used EBIs or not. The difference between the two scales is that the treatment efficacy scale is based on self-perception whereas the trauma knowledge scale is based on acquired information.

However, using these two scales provided a better operationalization of construct measurement. These two scales measured different constructs. The treatment efficacy scale measured perceived trauma treatment self-efficacy whereas the trauma knowledge scale measured knowledge about trauma, a prerequisite to developing trauma treatment skills and implementing an intervention.

Internal and External Validity

Since this is a survey based research study and not an experimental or quasi-experimental study, strenuous factors cannot be ruled out. Thus, knowledge of trauma and treatment efficacy predicting social workers' intervention use should be considered with this limitation. Furthermore, the correlations in some variables are weak, which constitutes a need for further exploration to determine if there is a relationship between variables such as clinical setting and knowledge of trauma and trauma treatment efficacy. In addition, generalization can only be applied to 13% of master level licensed (LMSW or LCSW) social workers who have experience in treating clients with trauma and are members of the NASW/TX in Texas but not to the general population of social workers in Texas. Therefore, the interpretation of these findings should consider the homogeneity of the population. Thus, future research should consider widening the sample and geography of participants.

Social Work Implications

Practice

The findings in this study indicate that social workers practicing in varying settings may not equally be prepared to treat clients with trauma. This study found that social workers working in settings outside of private practice have less knowledge about trauma and less efficacy in treating client with trauma than those social workers in private setting. Thus, many of trauma-affected clients may not be receiving the best trauma treatment from social workers who have knowledge of trauma and feel confident in

treating clients experiencing trauma. Findings of the study suggest that those clients who can afford private practice might receive more evidence-based treatment from social workers who have more knowledge and more confidence in their treatment. The differential in treatment interventions in practice settings suggests that social workers in agency settings may especially need to gain further trauma treatment training and experience to provide services to their clients.

Social workers may also be best served by having opportunities to work with a variety of clients and be exposed to colleagues that use a variety of interventions. This may encourage social workers to learn more about evidence-based interventions and then increasingly use them in their work with clients. It may also provide them with opportunities to participate in collegial case discussions. The finding that social workers use primarily one intervention and seek additional training in the one intervention that they use suggests that they may not be able to assess the importance of using varying interventions for varying client situations. However, the fact that social workers use what they know should not be surprising. The tension between more specialized knowledge and skills versus generalized knowledge and skills has been a frequent issue in social work education and social work practice.

The findings of the study suggest that there is a shortage of social workers with knowledge of trauma and treatment efficacy in rural areas (7%). According to the Bureau of Justice Statistics (2012), 27% of residential traumas occur in rural areas. In addition, social workers in these rural communities need to have trauma specialized training and expertise, especially because they will be the only ones providing this type of treatment

to their clients (social workers will not have immediate access to other practitioners to consult with regarding cases). Therefore, more social workers are needed in rural areas to address this complex service gap.

Policy

Agency Level

In order to facilitate increased and broader trauma-focused evidence-based intervention use by social workers, agency policies need to promote, encourage, or support trauma treatment training. The findings of this study suggest that the interventions social workers use appear to be related to policies and procedures at an agency. In this study, social workers at a counseling/community setting, outpatient/residential treatment center setting, and inpatient setting were less likely to use evidence-based interventions than social workers at the VA/Vet center and in private practice. The finding suggests that social workers in private practice and VA/Vet centers may have more freedom to seek knowledge and training of evidenced-based interventions and ultimately use a variety of evidence-based interventions than their counterparts in other settings. Thus, counseling/community agencies, outpatient/residential treatment centers, and inpatient settings need to develop policies that require their social workers to have a strong knowledge and skill base on trauma. Agency policies could also provide requiring specific training for its social workers.

In addition to influencing the use of evidence-based interventions, findings from the study suggest that agency policy may influence the specific interventions used. For example, the VA/Vet center/medical center has primarily been known to use and

advocate for PE and CPT use. The findings in this study supported this. PE and CPT use were significantly correlated with social workers at the VA/Vet center/medical center setting. This shows the influence a setting's policy can have on social workers' use of a particular intervention. In contrast, working at a counseling/community and outpatient setting did not positively correlate with the use of PE and EMDR, which may relate to grant funding specifying the use of a particular intervention. However, since agency policy appears to have an influence on intervention use, agencies may benefit from policies that support the use of specific evidence-based interventions.

State Level

Less than 10% of social workers use EMDR in their work with clients. This finding indicates the influence of managed care companies have on medical treatment in general and specifically have on social workers' use of interventions. For example, only recently have managed care companies accepted EMDR as treatment for PTSD (e.g. Tricare accepted EMDR in 2008). Social workers who were trained in EMDR could not use EMDR with clients who had Tricare as their managed care company. Thus, the role a managed care company plays is important as it influences practitioners' acceptance and utilization of other trauma-focused interventions. However, the state regulates how a managed care company practices. Therefore, the state should enact policies that prevent managed care companies from limiting social workers' utilization of evidence-based interventions.

The findings of the study also suggest that licensing boards may need to implement policies that require social workers to complete 3 hours of their continuing

education in trauma similar to the ethics continuing education requirement. This will ensure that social workers' level of expertise will increase and provide more effective trauma treatment.

The Spanish speaking language gap between practitioners and clients in Texas indicates a need for policies to provide incentives for Spanish speaking social work practitioners. The state could begin at the graduate level by offering tuition reduction/grants for those seeking a degree in clinical social work or other related counseling degree with the intent to practice as a clinician. In addition, the incentive should go further by addressing the geographic gap and lack of trauma treatment. The state could provide incentives (\$10,000 for a two-year assignment and relocation expenses paid) to trauma trained clinical social workers who would be willing to provide treatment in rural areas. Furthermore, the recruitment should be for those who are bilingual as preference for these incentives.

Federal Level

This study found a service gap in trauma treatment in rural areas which suggests that the Affordable Care Act of 2010 (PL 111-148) needs to be expanded to provide more services to those in rural communities. The Affordable Care Act should expand even further by providing grants to rural community agencies to recruit trauma trained social workers. In addition, the Affordable Care Act should provide grants for rural community agencies to provide training for social workers.

Research

The findings in this study indicate a need for further exploration of social workers' use of trauma-focused interventions, their knowledge of trauma, and their perceived trauma treatment efficacy. A future study should focus on agency policies and procedures to determine the effect they have on social workers' intervention utilization along with the agency financial provisions for social workers to seek further training in trauma-focused interventions. In addition, a qualitative study could focus on the clients, responses to trauma treatment along with the therapists' views of their self-efficacy in treating these clients. Such a study would be more informative regarding social workers' trauma treatment effectiveness.

The results of this study suggest that social workers may not be differentiating between CT and CBT even though CT and CBT were two separate interventions due to their original theoretical framework (CT primarily focused at the cognitive level and did not include behavioral interventions). However, this might not be the case anymore as social workers' education does not differentiate between CT and CBT. Social work education may combine these two interventions as one (CBT), which includes cognitive, behavior, and emotion. Therefore, CBT as a comprehensive intervention should be studied. In addition, if the study is about trauma treatment, it should focus on the two major components related to trauma-treatment: cognitive restructuring and imaginal exposure.

Social workers' knowledge of trauma and treatment efficacy needs further exploration. Many settings were not correlated or were negatively correlated with

knowledge of trauma and treatment efficacy. A study should focus on the population social workers serve in these settings to determine if trauma treatment is applicable to their setting. In this study, the VA setting was not correlated with knowledge of trauma and treatment efficacy, which needs further exploration as trauma treatment is applicable at the VA; further research is needed to determine if these results are constrained due to this study's sample size (only 10% of participants were from the VA).

In addition, the content and effectiveness of continuing education and training needs further exploration in relation to knowledge of trauma and treatment efficacy. Continuing education's lack of correlation with knowledge of trauma could be related to continuing education content and not social workers' knowledge retention. However, in this study there was not a control for that. Therefore, a study should focus on controlling for content and social workers' information retention from continuing education. This study confirms that there is a correlational difference in continuing education and training in relation to knowledge of trauma and treatment efficacy; the correlational difference is that training (knowledge retention and application) has more correlations with treatment efficacy than continuing education. This difference could be explained by the fact that training workshops require participants to demonstrate competency (knowledge retention and application) whereas continuing education does not, confirming that the application of learned material influences social workers perception of treatment efficacy.

Social Work Education

The findings in this study suggest that social work education may need to increase its focus on trauma and provide students with a stronger knowledge base on working with

clients who experience trauma. The findings that social workers' knowledge of trauma did not predict CBT use and that training in CBT was a better predictor than treatment efficacy for CBT use suggests that social workers may be using interventions that are not related to their knowledge base or their perceived level of expertise. There appears to be a gap between what social workers learn in their education and the skills they use in practice. Therefore, social work graduate schools might serve their students and ultimately clients better by adapting their curriculum design to include more trauma education. Graduate social work programs might develop concentrations on trauma or have required courses on trauma. This will would help prepare students to be better trauma-informed practitioners to work with clients who have experienced trauma, which will be about 50% to 90% of the general population (Breslau, 2009; Friedman, Resick, & Keane, 2007; Vieweg et al., 2006). The findings of the study also suggest that social work program need to do a much better job in recruiting Spanish speaking students. The need in Texas of Spanish speaking clinical social workers is great. Social work graduate programs could provide incentives for students to graduate with the intent to practice clinical social work. In addition, social work graduate programs could offer clinical language and cultural competency classes to prepare these students to work with the Spanish speaking population. This will help postgraduate students be more effective as they work with the Spanish speaking population. Besides classes, internship in agencies (especially in rural areas) that primarily serve Spanish speaking clients would be an excellent training and preparation for students' future work as well.

Conclusion

The findings in this study indicate that the more knowledge of trauma that social workers have and the higher their level of treatment efficacy, the more they used trauma-focused evidence-based interventions. Knowledge of trauma and treatment efficacy predicted social workers' use of evidence-based interventions in trauma treatment. Consequently, trauma education and training is necessary in order for social workers to efficaciously treat clients with traumatic symptoms. The need for social workers' treatment efficacy is precipitated by the fact that untreated trauma persists unless it is successfully reprocessed, and trauma-focused evidence-based intervention utility is the beginning to helping clients reprocess their traumatic experiences.

Appendix A

Background Questionnaire

Background Questionnaire

INSTRUCTIONS: The following questions pertain to your clinical practice related to trauma. Throughout the survey you will have specific directions on each question. Some questions ask you to select your answer while others to fill in the blank. Everything you provide on this survey is anonymous. This survey will take approximately 10-15 minutes to complete. Thank you so much for participating in this study!

1. Have you ever treated clients who have experienced trauma (in the past or currently)?

- a. Yes
- b. No

2. What type of licensure do you have?

- a. LMSW
- b. LMSW-AP
- c. LCSW
- d. Other type of license, please specify on the line below:

3. What is the highest degree you obtained?

- a. Doctoral level
- b. Master's level
- c. Other: _____

4. In which city do you currently practice? Please write your answer.

Specify _____

5. Do you treat military members of the armed forces?

- a. Yes
- b. No

6. Where is the clinical setting that you currently treat your clients? Check all that apply. If your setting is not listed, please indicate by writing the clinical setting(s) where you currently practice.

- a. Counseling center/Community agency
- b. Private practice
- c. Outpatient clinic/treatment center
- d. Inpatient

- e. VA/Vet Center/Armed Forces Medical Center
- f. If more than one setting, please indicate here: _____
7. For how many years have you practiced in the following settings? Please write the number of years for each setting; if no years of experience on a particular setting, write zero.
- _____ a Counseling center/Community agency
- _____ b Private practice
- _____ c Outpatient clinic/treatment center
- _____ d Inpatient/hospital
- _____ e VA/Vet Center/Armed Forces Medical Center
- _____ f Other settings, write type of setting: _____

8. Approximately, how many clients do you see a week? Please use the scale below.

Number of clients a week

0	5	10	15	20	25	30
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9. What percent of trauma related clients do you currently treat? Please select your response using the scale below, where 0% indicates no clients with trauma and 100% indicates all clients with trauma.

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(No clients with trauma) (All clients with trauma)

10. How many years of experience do you have treating clients with trauma? Please use the scale below.

Number of years treating clients with trauma

0	5	10	15	20	25	30+
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11. The following questions (11a and 11b) pertain to the interventions you use with clients who experience traumatic symptoms. Question 11a is whether you use this intervention or not. Question 11b is the overall percentage of the time you use each intervention with clients experiencing traumatic symptoms.

- a. Please select which of the following **interventions you use** with clients who experience traumatic symptoms. Please select your responses from the listed interventions below or list them if you use others.

Interventions	Use	
CT (Cognitive therapy)-challenge distorted cognition	Yes	No
CBT (Cognitive behavioral therapy)-Imaginal exposure and cognitive restructuring	Yes	No
TF-CBT (Trauma-focused cognitive behavioral therapy)	Yes	No
CPT (Cognitive processing therapy)-write trauma narrative	Yes	No
PE (Prolonged exposure therapy)-In vivo exposure	Yes	No
EMDR (Eye movement desensitization and reprocessing)-bilateral stimulation or dual attention focus	Yes	No
If other interventions, list interventions	Yes	No

b. If **Yes**, what is the **overall percentage** (%) of time you use this intervention with clients experiencing trauma?

Interventions	Percent of time you use intervention
CT (Cognitive therapy)-challenge distorted cognition	10 20 30 40 50 60 70 80 90 100
CBT (Cognitive behavioral therapy)-Imaginal exposure and cognitive restructuring	10 20 30 40 50 60 70 80 90 100
TF-CBT (Trauma-focused cognitive behavioral therapy)	10 20 30 40 50 60 70 80 90 100
CPT (Cognitive processing therapy)-write trauma narrative	10 20 30 40 50 60 70 80 90 100
PE (Prolonged exposure therapy)-In Vivo exposure	10 20 30 40 50 60 70 80 90 100
EMDR (Eye movement desensitization and reprocessing)-bilateral stimulation or dual attention focus	10 20 30 40 50 60 70 80 90 100
If other interventions, list interventions	10 20 30 40 50 60 70 80 90 100

The following questions pertain to continuing education (CE) and formal training received postgraduate school (questions 12 and 13). CE is defined as attending seminars or workshops about an intervention without receiving training on the protocol (a step-by-step process on using the intervention). Formal training is defined as receiving intervention training from a trainer who primarily focused on teaching the intervention protocol (a step-by-step process on using the intervention).

12. How many hours do you have in **continuing education (CE)** by attending seminars or workshops on these interventions? Please use the scale below, where 0 indicates no CE hours and 100 or more hours indicate you have developed expertise in that intervention due to the number of hours in continuing education.

Number of CE hours

1. Cognitive therapy	0	10	20	30	40	50	60	70	80	90	100+
2. Cognitive behavioral therapy	0	10	20	30	40	50	60	70	80	90	100+
3. Exposure therapy	0	10	20	30	40	50	60	70	80	90	100+
4. Cognitive processing therapy	0	10	20	30	40	50	60	70	80	90	100+
5. Eye movement desensitization and reprocessing	0	10	20	30	40	50	60	70	80	90	100+
6. If other interventions, list interventions (s)	0	10	20	30	40	50	60	70	80	90	100+

13. Following graduation from achieving your MSW degree, please indicate the number of hours you have had of **formal training** (trained by a trainer—specialist) on the following interventions using the scale below, where 0 indicates no formal training hours and 40 indicates formal training and you have developed expertise in using the intervention. Please circle your answer.

	No formal training				Completed formal training
1. Cognitive therapy	0	10	20	30	40
2. Cognitive behavioral therapy	0	10	20	30	40
3. Exposure therapy	0	10	20	30	40
4. Cognitive processing therapy	0	10	20	30	40
5. Eye movement desensitization and reprocessing	0	10	20	30	40
6. If other interventions, list interventions (s)	0	10	20	30	40

14. What is your age?

- a. 34 or younger
- b. 35-44
- c. 45-54
- d. 55-64
- e. 65 or older

15. What is your gender?

- a. M
- b. F

16. What is your ethnicity?

- a. Caucasian
- b. African American
- c. Hispanic/Latino
- d. Asian American
- e. Native American
- f. Multiracial/multiethnic
- g. Rather not answer
- h. Other

17. Do you speak Spanish?

- a. Yes
- b. No

Appendix B

Trauma Treatment Perceived Self-Efficacy Scale

Trauma Treatment Perceived Self-Efficacy Scale

Please rate how certain you are that **AS OF NOW** you can successfully treat clients who have experienced the following specific type of traumatic experience and engage in the specific interventions. Please rate your degree of confidence by circling a number from 0 to 10 using the scale given below:

	Cannot do at all			Moderately can do			Highly certain can do				
	0	1	2	3	4	5	6	7	8	9	10
1. Treat adult survivors of childhood trauma	0	1	2	3	4	5	6	7	8	9	10
2. Treat adult survivors of recent personal trauma	0	1	2	3	4	5	6	7	8	9	10
3. Treat survivors of community trauma/disaster	0	1	2	3	4	5	6	7	8	9	10
4. Treat child or adolescent survivors of trauma	0	1	2	3	4	5	6	7	8	9	10
5. Treat clients who have complex trauma (e.g. multiple traumas, dissociation, etc.)	0	1	2	3	4	5	6	7	8	9	10
6. Reduce clients' ruminating traumatic thoughts or intrusive images	0	1	2	3	4	5	6	7	8	9	10
7. Reduce clients' emotional intensity related to the trauma	0	1	2	3	4	5	6	7	8	9	10
8. Use grounding strategies to prevent clients from dissociating	0	1	2	3	4	5	6	7	8	9	10
9. Reduce clients' hypervigilance related to the trauma	0	1	2	3	4	5	6	7	8	9	10
10. Use relaxation strategies (e.g. deep breathing, progressive muscle relaxation, etc.)	0	1	2	3	4	5	6	7	8	9	10
11. Assign homework or behavioral tasks outside of session	0	1	2	3	4	5	6	7	8	9	10
12. Help clients identify trauma	0	1	2	3	4	5	6	7	8	9	10

triggers												
13. Reduce the numbing (hypoarousal) effects of trauma	0	1	2	3	4	5	6	7	8	9	10	
14. Confront clients' trauma avoidance	0	1	2	3	4	5	6	7	8	9	10	
15. Measure traumatic symptoms and functioning in a systematic way	0	1	2	3	4	5	6	7	8	9	10	
16. Provide psychoeducation about trauma	0	1	2	3	4	5	6	7	8	9	10	
17. Teach clients coping skills to manage triggers/reminders	0	1	2	3	4	5	6	7	8	9	10	
18. Examine clients' trauma behavioral chain of events	0	1	2	3	4	5	6	7	8	9	10	
19. Make sense of traumatic events and clients' reactions to event	0	1	2	3	4	5	6	7	8	9	10	
20. Motivate clients to adhere to trauma treatment	0	1	2	3	4	5	6	7	8	9	10	
21. Help clients connect their thoughts, feelings, and sensory experiences around the trauma	0	1	2	3	4	5	6	7	8	9	10	

Appendix C

General Self-Efficacy Scale

General Self-Efficacy Scale

Please rate whether you agree or disagree with the following statements. Please circle the response which best indicates the extent to which you agree or disagree with each of these statements ('1' strongly disagree to '4' strongly agree). Please answer all questions.

	Strongly disagree				Strongly agree
1. I can always manage to solve difficult problems if I try hard enough.	1	2	3	4	
2. If someone opposes me, I can find the ways and means to get what I want.	1	2	3	4	
3. I am certain that I can accomplish my goals.	1	2	3	4	
4. I am confident that I could deal efficiently with unexpected events.	1	2	3	4	
5. Thanks to my resourcefulness, I can handle unforeseen situations.	1	2	3	4	
6. I can solve most problems if I invest the necessary effort.	1	2	3	4	
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	1	2	3	4	
8. When I am confronted with a problem, I can find several solutions.	1	2	3	4	
9. If I am in trouble, I can think of a good solution.	1	2	3	4	
10. I can handle whatever comes my way.	1	2	3	4	

Appendix D

Revised PTSD Knowledge Questionnaire Scale

Revised PTSD Knowledge Questionnaire Scale

1. On the following scale, please rate how well informed you consider yourself to be about posttraumatic stress disorder (PTSD). Please circle your answer.

0	1	2	3	4
Very poorly informed				Very well informed

2. Listed below is a series of statements about PTSD. Please circle the response which best indicates the extent to which you agree or disagree with each of these statements ('0' strongly disagree to '4' strongly agree). Please answer all questions.

	strongly disagree			Strongly agree		
1. PTSD symptoms rarely improve with treatment.	0	1	2	3	4	
2. Alcohol and drug abuse are often associated with PTSD.	0	1	2	3	4	
3. PTSD treatment rarely involves a focus on the trauma itself.	0	1	2	3	4	
4. It is common for individuals with PTSD to maintain interest and participation in previously enjoyed activities.	0	1	2	3	4	
5. Individuals diagnosed with PTSD frequently experience dissociative states, where they relive the traumatic experience and behave as though experiencing the event at that moment.	0	1	2	3	4	
6. A child's reaction to a traumatic event in PTSD may be expressed through disorganized or agitated behavior.	0	1	2	3	4	
7. Witnessing a traumatic event, such as serious injury or unnatural death through violent assault, accident, war or disaster, can precipitate PTSD.	0	1	2	3	4	
8. Trauma is also associated with the onset of other mental disorders.	0	1	2	3	4	
9. Social support after a traumatic experience can moderate symptom development.	0	1	2	3	4	
10. Guilt is one of the criteria for diagnosing PTSD.	0	1	2	3	4	
11. History of childhood sexual abuse is a vulnerability factor for the development of PTSD.	0	1	2	3	4	
12. Commonly, individuals with PTSD experience recurrent and intrusive	0	1	2	3	4	

recollections of the traumatic event.

13. Individuals with PTSD commonly make deliberate efforts to avoid thoughts, feelings, or conversations about the traumatic event.	0	1	2	3	4
14. Children may reenact the traumatic event through repetitive play.	0	1	2	3	4
15. PTSD does not interfere with an individual's ability to concentrate or complete tasks.	0	1	2	3	4
16. All individuals exposed to a life-threatening stressor will develop PTSD.	0	1	2	3	4
17. Hypervigilant behavior is one of the symptoms of PTSD.	0	1	2	3	4
18. Previous psychiatric history has little bearing on the development of PTSD.	0	1	2	3	4
19. PTSD symptoms may be delayed by months or even years post the traumatic event.	0	1	2	3	4
20. The person's immediate response to the traumatic event has no impact on the diagnosis of PTSD.	0	1	2	3	4
21. Family history of psychiatric illness has little bearing on the development of PTSD.	0	1	2	3	4
22. Individuals with PTSD may have a remarkably reduced ability to feel emotions (especially those associated with intimacy, tenderness, and sexuality).	0	1	2	3	4
23. PTSD can occur in childhood, adolescence, or adulthood.	0	1	2	3	4
24. Difficulties with sleep onset are not associated with PTSD.	0	1	2	3	4
25. Psychoeducation is an essential part of treatment in PTSD.	0	1	2	3	4

Appendix E

Cover Letters and NASW/TX Letter of Support

Email Cover Letter (first page of survey)

Dear Social Worker,

I am a social work student at the University of Texas at Arlington. As part of my doctoral degree requirement, I am studying Texas social workers' training to treat their clients who have experienced trauma. I would greatly appreciate your participation on this online survey of "Social Workers' Trauma Treatment." The questions pertain to your knowledge of trauma, trauma treatment effectiveness, and the interventions you use in your clinical practice. Everything you provide on this survey is anonymous. This survey will take approximately 10-15 minutes to complete.

You were selected to participate in this study because you are a licensed master social worker. Your participation is crucial to help increase our knowledge base of social workers' trauma training. This will help with training, research, and education.

Your participation is voluntary and your responses are anonymous. No one will be able to identify you from your answers. Although the data collection is through SurveyShare and it has the capacity to record internet protocol (IP) addresses from respondents, this option will not be used for the purpose of this study in order to ensure the anonymity of your participation.

If you have any questions about this survey, please contact Jose Carbajal, principal investigator, at 817-565-7162, jose.carbajal@mavs.uta.edu or Beverly Black, PhD, faculty research supervisor, at 817-272-3928, beverlyblack@uta.edu. The University of Texas at Arlington Institutional Review Board for the Protection of Human Subjects (IRB) has reviewed the research protocol and approved it. If you have any questions regarding the research protocol and your rights as a research participant, you may directly contact them at 817-272-2105, regulatoryservices@uta.edu. Your current or future relationship with the University of Texas at Arlington or NASW/TX will not be affected by your decision to participate in this research.

NASW/TX Disclaimer Statement: "Views expressed by the researcher do not necessarily represent the views of NASW/Texas and any findings or recommendations emerging from the research do not constitute an endorsement by NASW/Texas."

Your participation is important. As a token of my appreciation, three social workers who complete the survey will be randomly selected for a **\$25 Amazon gift card**. Thank you so much!

If you consent to participate, please click on the button **I accept**. If you do not consent to participate, please click on the button **I decline**.

Jose Carbajal, LCSW
Doctoral Student

The University of Texas at Arlington

Beverly Black, Ph.D., MSSW
Jillian Michelle Smith Professor in Family Violence Research
Director, PhD Program
School of Social Work
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Arlington, TX 76019-0129
Main Line: 817-272-3928

Initial Email Message

I am a social work student at the University of Texas at Arlington. I would greatly appreciate your participation in this online survey entitled “Social Workers’ Trauma Treatment.” The link to the survey is below. The first page of the survey includes the consent form. Everything you provide on this survey is anonymous and it will take approximately 10-15 minutes to complete.

Email Follow up

Dear Social Worker,

A couple of weeks ago you received an email requesting you to complete an online survey, “Social Workers’ Trauma Treatment.” Many social workers across the state of Texas have completed the online survey. However, I am asking for your assistance. The more social workers participate, the more accurate my study will reflect social workers in Texas. Please help me in this endeavor. Everything you provide on this survey is anonymous. Also, remember that you have a chance to win a **\$25 Amazon gift card** if you complete the survey.

Sincerely,
Jose Carbajal
Doctoral Student

NASW/TX Letter of Support

From: Vicki Hansen [VHansen@naswtx.org]
Sent: Monday, June 17, 2013 10:10 AM
To: 'Jose Carbajal'
Subject: Letter of Support from NASW/Texas



June 17, 2013

University of
Texas at
Arlington
School of
Social Work
Box 19129 211
S. Cooper St.
Suite 301F
Arlington, Texas

To whom it may concern:

The National Association of Social Workers- Texas (NASW-Texas) approves of the implementation of the research study entitled, "Social Workers' Education and Training," pending IRB approval and review by NASW-Texas. NASW-Texas has agreed to disseminate an email to its membership in order to provide the members with an opportunity to participate in this study and to distribute three \$25 gift cards to the randomly selected members (researcher will provide the three \$25 gift cards). A report is expected by the end of the study period to be submitted to NASW-Texas. This project will assist NASW-Texas in furthering the development of social work education and training as well as increasing the competitiveness of social workers in the job market.

Sincerely,

A handwritten signature in black ink that reads "Vicki Hansen".

Vicki Hansen,
LMSW-AP,
ACSW Executive
Director,
NASW/Texas

Appendix F
Project Timeline

Project Timeline

Month	Task
Jan-June, 2013	Complete dissertation proposal
July	Dissertation proposal defense
Aug	Gain Institutional Review Board approval to conduct research
Aug-Sep	Send questionnaire and reminders
Oct-Nov	Collect data
Nov-Dec	Clean data and prepare for analysis
Dec 13-Mar 14	Analyze results and start dissertation writing
Apr 2014	Defend dissertation

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Biographical Information

Jose is a licensed clinical social worker. He served in the U.S. Army; after his military service, Jose attended Baylor University, where he received his bachelor's degree and master's degree in social work. He also received another master's degree from Baylor University in theological studies. He received his social work PhD degree from the University of Texas at Arlington. Jose is currently employed at the East Texas Community Health Services, Inc. and an adjunct professor teaching social work practice courses. Jose's research focus is on the effects of psychological trauma and posttraumatic stress, and the interventions clinicians use to treat posttraumatic stress. He has published several articles on trauma treatment and a book chapter on neuroscience and social work practice. Jose has worked in community agencies developing programs and providing therapy to children, families, and individuals. He has also provided therapy to military members and their families. His clinical specialties are trauma (PTSD), sexual abuse recovery, domestic violence, substance abuse, and interpersonal relationship issues, along with adjustment issues due to life transitions.