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Lediya Dumessa

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Adversity and resilience training: Trauma-informed care as a universal community intervention

By

Lediya Dumessa

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Applied Psychology (Clinical Psychology concentration)
in the Department of Psychology

Mississippi State, Mississippi

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2020

Adversity and resilience training: Trauma-informed care as a universal community intervention

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Growing evidence of the health risks associated with adverse childhood experiences (ACEs) has prompted public health and community initiatives to promote awareness, detection, and responses that are trauma informed. Nationwide programs to integrate trauma-informed care into education, health care, and child serving agencies, have thus far led to the proposal and advancement of trauma-informed policies and practices in many communities. While Mississippi agencies include trauma-specific intervention and training, statewide ACEs initiatives and relevant data are still limited. This project aimed to contribute to the larger goal of a statewide trauma-informed paradigm shift, by increasing ACEs awareness and developing recommendations for the integration of such research into programs aimed at serving vulnerable populations. Sixty-one child-serving professionals participated in adversity and resilience training (ART), a 3-hour workshop addressing childhood adversity, traumatic stress, resilience, and secondary traumatization. Outcomes measured were changes in trauma knowledge, trauma informed attitudes, attributions regarding difficult child-behaviors, and secondary trauma knowledge and self-care. Participants also provided ratings on a training evaluation survey.

There were significant changes in trauma knowledge ($F(1,22) = 6.418, p = .000, \eta_p^2 = .226$) and

trauma-informed attitudes ($F(1,22) = 11.014, p = .003, \eta_p^2 = .334$) between pre- and post-training. Training evaluations were generally positive ($M = 4.61, SD = 0.13$, on a 1 to 5 Likert scale). The current study contributes to the research an evaluation of a training intervention that offers feasible strategies for scalable training and assessment of outcomes.

TABLE OF CONTENTS

LIST OF TABLES	iv
LIST OF FIGURES	v
I. INTRODUCTION	1
Trauma.....	2
Adverse Childhood Experiences (ACEs)	3
Child Maltreatment and Separation from Caregivers.....	5
Impact of Childhood Trauma	8
Attributions of Children’s Behavior	12
Secondary traumatic stress	12
Resilience	13
Trauma Informed Approach	16
Preliminary Data.....	18
Present Study	20
Hypotheses	20
II. METHODS	22
Participants	22
Measures.....	23
Exposure to ACEs	23
Trauma Knowledge	23
Trauma-Informed Attitudes.....	24
Attributions.....	24
Self-Care Assessment Worksheet (SCAW)	25
Training Evaluation	25
Applied Skills Check.....	26
Procedure	26
III. RESULTS	28
Sample Description	28
Trauma Knowledge	30
Attitudes	32
Attributions.....	32
Self-Care.....	32

Training Evaluation	33
IV. DISCUSSION	36
Limitations and Directions for Future Research	40
REFERENCES	42
A. ADVERSITY AND RESILIENCE TRAINING OUTLINE.....	54
B. ACES MEASURE	60
C. CHILDHOOD TRAUMA KNOWLEDGE.....	62
D. ATTRIBUTIONS MEASURE	66
E. SELF-CARE MEASURE	68
F. TRAINING EVALUATIONS.....	73
G. VIGNETTES.....	75
H. INSTITUTIONAL REVIEW BOARD LETTER.....	77

LIST OF TABLES

Table 1	Demographic Characteristics of Participants.....	29
Table 2	Prevalence of ACEs in the sample.....	30
Table 3	Means and standard deviations of dependent variables at pre- and post-test...30	
Table 4	Participants' self-care means at the time of the training.....	34
Table 5	Participants' workshop evaluation ratings.....	34
Table 6	Participants' qualitative feedback.....	35

LIST OF FIGURES

<i>Figure 1.</i> Mechanisms by which ACEs influence wellbeing (Anda et al., 1999)	5
<i>Figure 2.</i> The prevalence of ACEs in the pilot sample	19
<i>Figure 3.</i> Pre- and post-training scores in childhood trauma knowledge (CTK)	31

CHAPTER I

INTRODUCTION

Childhood trauma is a prevalent public health issue both in the United States and internationally. Every year, millions of children and youth experience potentially traumatic events or adverse stressors before they reach adulthood. In fact, 1 in 4 children experience a traumatic event before they reach the age of 16 (Costello, Erkanli, Fairbank, & Angold, 2002). Traumatic events are varied in nature and may include child maltreatment, domestic abuse, natural disasters, loss, and displacement from home or separation from primary caregivers. While some children and youth recover from childhood adversity relatively quickly, these experiences can have long-lasting negative outcomes for others. The prominent retrospective research, the adverse childhood experiences (ACEs) study, formally revealed the connection between childhood stressors and adulthood experience of poor physical, emotional, and social functioning in the late nineties (Anda et al., 1999). The ACEs study examined eight categories of childhood adversity: emotional abuse, physical abuse, sexual abuse, having a battered mother, parental separation or divorce, exposure to substance abuse, having a mentally ill caregiver, and having an incarcerated family member. Multiple studies since then have supported the original findings by documenting long-term consequences associated with childhood adversity. For example children with ACEs have an increased risk for behavioral problems (Ford, Connor, & Hawke, 2009), academic difficulties (Slade & Wissow, 2007), emotional maladjustment (Dvir,

Ford, Hill, & Frazier, 2014), and interpersonal difficulties (D'andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012).

Besides the direct experience of difficulties associated with trauma, traumatic stress is associated with increased use of services such as medical care, mental health services, and involvement in child-serving systems, such as child welfare and juvenile justice systems (Chapman, Ford, Albert, & Hawke, 2006). Notably, children are more likely to access mental health services through schools and health care settings than through mental health clinics (Ko et al., 2008). In fact, while 75% of children under the age of 12 visit a pediatrician at least once a year, only 4% see a mental health professional (Costello, Pescosolido, Angold, & Burns, 1998). Unfortunately, children's rate of mental health service utilization continues to be low (McKay & Bannon Jr., 2004). The National Institute of Mental Health estimates that 75% of children with mental health needs do not receive mental health services (National Institute of Mental Health, 2001). In this regard, a myriad of other professionals interact with children and youth and are faced with both the opportunity and responsibility to provide care. Given the large number of children and youth with ACEs the quality of care can be improved by providing different systems with information on childhood trauma, its impact and appropriate care.

Trauma

According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2014), "trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being." The experience of trauma depends highly on individual differences in that

an event that is experienced as traumatic by one may not be experienced the same way by another. In the context of childhood trauma, variables such as age, gender, developmental stage, availability of support system, cognitive skills, coping skills, and interpersonal skills may affect the way trauma is experienced and interpreted (Mikolajczyk, 2018). For example, two children from the same family may experience parental separation or divorce differently.

Moreover, the nature of childhood trauma is varied and prevalence rates are higher in some groups than others. For example, children from single-parent homes, ethnic minorities, and low socioeconomic status are at a higher risk for exposure to traumatic events in the form of family violence (Turner et al., 2006). Additionally, children and youth involved in the welfare system are at a higher risk for experiencing a traumatic event in their life. In fact, about 90% of children and youth entering the foster care system have experienced a traumatic event (Stein et al., 2001).

Additionally, the literature divides trauma into acute and complex trauma. Acute trauma results from exposure to a single distressing event (e.g. natural disaster, car accident) while complex trauma results from prolonged exposure to adverse experiences (e.g. child maltreatment). While the effects of trauma can be short term or long term with varying onset of symptoms, trauma that occurs during childhood is associated with long-lasting negative outcomes that persist throughout the lifespan.

Adverse Childhood Experiences (ACEs)

The ACEs study is a seminal research conducted by Dr. Vincent Felitti of Kaiser Permanente Medical Group and Dr. Robert Anda of the Center for Disease Control (CDC) in the late nineties (Anda et al., 1999). Their research analyzed the relationship between multiple categories of participants' childhood trauma and their health and behavioral outcomes in

adulthood. A ten-item questionnaire was mailed to about 17,000 adults to assess experiences of adverse events during the first 18 years of life. Adverse experiences assessed in the survey include: physical abuse, emotional abuse, sexual abuse, physical or emotional neglect, substance use, incarceration of a family member, witnessing battery against mother, mental illness, and parental separation or divorce.

The results from the ACEs study indicated a high rate of childhood trauma that had otherwise been considered a rare occurrence. More than 50% of the sample in this study had experienced at least one adverse experience while 16% had experienced 4 or more ACEs. The results also indicated a dose-response relationship wherein a higher number of ACEs was correlated with more negative health outcomes and health risk behaviors. Moreover, exposure to one ACE category increased the likelihood of experiencing another category by 80%. The diagram below shows the mechanisms by which ACEs may influence health and well-being throughout the lifespan.

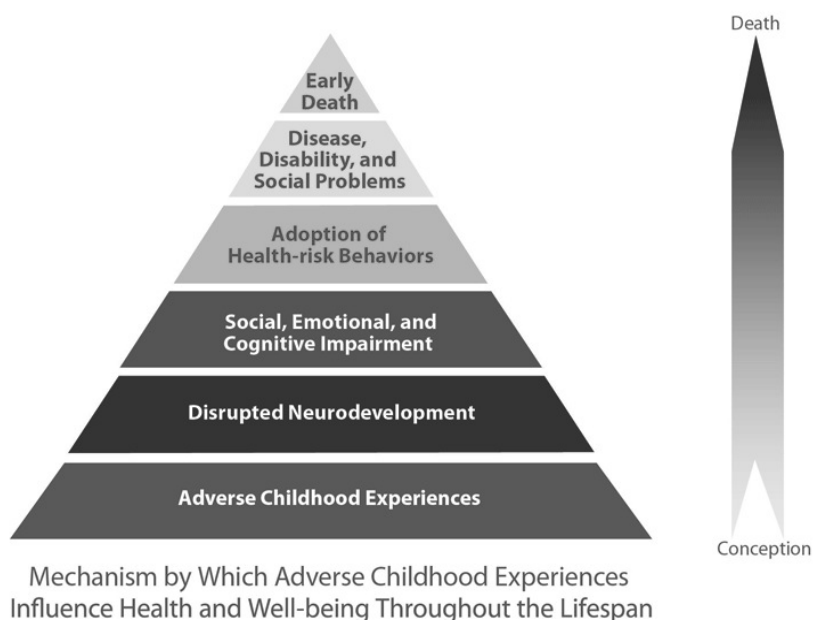


Figure 1. Mechanisms by which ACEs influence wellbeing (Anda et al., 1999)

ACEs studies conducted since then have supported the original findings illustrating the relationship between childhood trauma and negative physical, emotional, and social outcomes in adulthood. The most prevalent form of early life trauma still remains child maltreatment (Jennings, 2004). While all the ACEs categories posit significant risks for well-being, attachment, or relational trauma, such as child maltreatment and subsequent separation from primary caregivers may have a unique impact on children’s healthy biopsychosocial development (e.g. attention and memory difficulties, Carrion, Wong & Kletter, 2013; interpersonal difficulties, Bakermans-Kranenburg et al., 2011).

Child Maltreatment and Separation from Caregivers

In the United States in 2016, about 676,000 children were affected by maltreatment, including 1,750 fatalities (U.S. Department of Health and Human Services, 2018). In addition to studies documenting high prevalence, child maltreatment is linked to difficulties in multiple

domains of development including cognitive, emotional, behavioral, and social (Bell & Romano, 2015). Unfortunately, the associated negative outcomes persist during adolescence and beyond (Mills et al., 2013). As such, individuals who have been abused as children are at a higher risk for developing psychological disorders such as depression, anxiety, and substance use disorder (Jaffee & Maikovich-Fong, 2011; Mills et al., 2013). They are also more likely to experience suicidality, dysfunctional peer relationships, and conduct disorder (Collishaw, Maughan, & Pickles, 2007).

Closely related to child maltreatment is separation from primary caregivers or displacement from home. Every year, a staggering number of children are removed from their homes because they have experienced child maltreatment. In the United States in 2014, for example, 415,129 children were living in foster care and had been in foster care for an average of 1.5 years (Adoption and Foster Care Analysis and Reporting System (AFCARS), 2015). Almost half (46%) were living in nonrelative foster care, 29% were living with relatives, 4% were in pre-adoptive homes, and the remainder were in group homes, institutions, supervised independent living, on a trial home visit, or on the run (AFCARS, 2015). Children are often removed from their primary home due to maltreatment (Solomon & Åsberg, 2012), parental substance use disorders (Oliveros & Kaufman, 2011), and parental mental illness, all of which increase children's risk for psychological maladjustment (Jaffee & Maikovich-Fong, 2011; Mills et al., 2013). Unfortunately, the difficulties children face with displacement add to the risk for psychological maladjustment associated with the reasons they were removed in the first place (Lawrence, Carlson, & Egeland, 2006).

Despite the detrimental effects of child maltreatment that have been well documented, the removal of children from their original home is not the first line of defense in cases of

maltreatment. In fact, Child Protective Service (CPS) workers generally seek to maintain families intact and promote permanency by making the decision to remove children from home only in cases of imminent danger (Berger et al., 2009). However, despite efforts to ensure the safety of children while they are in their original home, out-of-home placement remains necessary for a staggering number of children. For example, approximately 300,000 children are taken out of their primary environment and placed in foster care in any given year (Bass, Shields, & Behrman, 2004). Although removing children from their current environment or immediate danger is an important and necessary step, it disrupts normal development.

One of the most pronounced effects of out-of-home placement is the disruption of attachment, meaning the capacity to form functional social relationships. Attachment develops between children and their primary caregivers beginning in infancy. This attachment is often used as a safe base from which children learn to experience and explore their world. The relationship between children and their parents is a process that develops over time as children start attaching to their primary caregivers during infancy. Interaction is particularly important in looking at how children and their parents form and maintain their relationship. Bowlby (1978) explains that attachment develops through consistent interaction between children and their caregiver during which the caregivers' behaviors provide information on the security of the attachment. Children's relationship with their primary care givers is important for their social, emotional, and cognitive development and when the attachment is disrupted through events such as child maltreatment and/or separation from primary caregivers, it can lead to behavioral and interpersonal difficulties.

In this regard, the high rate of multiple placements (Fisher, Burraston, & Pears, 2005) among foster care youth is an additional risk factor to the multitude of negative outcomes.

Children growing up in institutions do not have the opportunity to form stable relationships with their caregivers (Bakermans-Kranenburg et al., 2011). As a result, children who have had placement instability are at risk for multiple problems related to behavior, academics, and mental health (Fisher, Burraston, & Pears, 2005). Given that children who have been in multiple placements experience behavioral and emotional problems, they are at a higher risk for more placements, which exacerbates the problem further (Fisher, Burraston, & Pears, 2005). In addition to behavioral and social problems, foster care youth are at risk for maladaptive emotional development.

Impact of Childhood Trauma

The stress associated with childhood trauma such as child maltreatment has been linked to alterations in the neurobiological systems, which are involved in the maturation of the brain, development of cognitive functions, and emotional and behavioral regulation (Watts-English et al., 2011). When experiencing stress, an increased number of catecholamines, neurotransmitters such as dopamine and norepinephrine are released, and are thought to prolong the hyper-arousal state, which deter development during the maturation state and affect cognitive abilities (De Bellis, 2001).

Since the biological stress response system is altered after trauma and this alteration in turn affects brain regions that are involved in stress response and impede proper development of brain areas that are easily affected by neurochemical dysregulation (Wilson, Hansen & Li, 2011), the chances of maltreated children developing psychological disorders such as Posttraumatic Stress Disorder are significant (Carrion, Wong, & Kletter, 2013). In fact, approximately 20-63% of children who are maltreated develop PTSD (Gabbay, Oatis, Silva, & Hirsrch, 2004).

Neuroimaging studies have also found differences in cerebral volume, prefrontal cortex,

hippocampus, cerebellum, superior temporal gyrus, and corpus callosum in maltreatment-related childhood PTSD while neuropsychological results have shown deficits in memory, attention, and learning (Carrion, Wong & Kletter, 2013).

Additionally, results of neuroimaging studies have shown that maltreated children have a reduction of the frontal lobe asymmetry because of a greater gray matter, which suggest deficits in frontal lobe functioning (Carrion et al., 2001). Children with PTSD and a history of maltreatment showed reduced regions of the prefrontal cortex, specifically, they have a reduced white matter volume in the prefrontal cortex (De Bellis et. al., 2002). They also do not use the key areas of the prefrontal cortex when compared to children with no history of maltreatment and consequent PTSD (Carrion, Wong & Kletter, 2013). Furthermore, investigation of the relationship between cortisol and prefrontal cortex volume among children who have experienced maltreatment revealed decreased left ventral and left inferior gray volumes among children with PTSD, suggesting a possible connection between cortisol dysregulation and prefrontal cortex volume (Carrion, Wong, & Kletter, 2013). Studies have also found that the stress resulting from trauma may lead to dysregulation of cortisol levels (Carrion, Wong, & Kletter, 2013).

Research has also indicated differences in the cerebellum in children with maltreatment-related PTSD (Carrion, Wong, & Kletter, 2013). Specifically, the left, right, and total cerebellar volume was smaller in children with PTSD (De Bellis & Kuchibhatla, 2006). Consequently, neuropsychological tests reveal that children with maltreatment-related PTSD have difficulties with attention (De Bellis et. al., 2009) and were found to be more impulsive and distractible (Beers and De Bellis, 2002). Furthermore, children with maltreatment-related PTSD have decreased medial and posterior corpus callosum (De Bellis et. al., 2002a). As a result, the

processing of emotional stimuli and memory, which are moderated by the medial and posterior areas of the corpus callosum, are affected (Carrion, Wong & Kletter, 2013).

Neuropsychological tests support the neuroimaging studies and show expected cognitive deficits based on the affected brain regions. For example, children with PTSD perform more poorly than healthy controls on the color/word and interference tasks of the Stroop Color and Word Test, which measure distractibility; and on Digit Vigilance Test, which measures visual attention (Beers & De Bellis, 2002). On the Wisconsin Card Sorting test, which measures problem solving and abstract reasoning, children with maltreatment-related PTSD were able to generate fewer categories than their counterparts. Similarly, they generated fewer categories on the Controlled Oral Word Association Test Animal Naming and Total Words (F, A, & S) (Beers & De Bellis, 2002). Children with maltreatment-related PTSD also performed more poorly on the California Verbal Learning Test long delay free recall measuring learning and memory (Beers & De Bellis, 2002). Additionally, they have difficulties with general and verbal memory tasks, as well as learning (Carrion, Wong & Kletter, 2013) due to possible damage to the hippocampus, more specifically high cortisol levels (Smith, 2005). Moreover, Moradi and colleagues (2000) found that in addition to poor memory, children with a history of trauma and PTSD were more likely to remember negative events over positive ones.

Maladaptive emotional development has also been identified as a crucial pathway to psychopathology (Greenberg, Kusche, & Spelz, 1991). Children who have experienced trauma tend to exhibit abnormal emotional development, such as early patterns of fear, irritability, and context-inappropriate affect; they also exhibit difficulties in emotion understanding and communication (Shields & Cicchetti, 1998). While the ability to manage emotions and impulses are essential skills for healthy development, exposure to trauma can undermine the capacity to

effectively manage emotions and impulses. To the extent that emotion regulation skills are usually learned from primary caregivers, in the instances where effective skills are not learned, interventions may be needed to teach ER skills.

The aforementioned impacts of trauma can manifest in different contexts of a child's life. For example, children can exhibit academic difficulties, including low grade point average (GPA), high rate of school absences, increased dropout rates, and increased likelihood of suspensions or expulsions (Slade & Wissow, 2007). Exposure to ACEs negatively impacts learning by disturbing attention, memory, and cognition (Carrion, Wong & Kletter, 2013). As a result, a child may find it difficult to focus and process information in the classroom, which may result in frustration both for the child and their teachers. Relatedly, such frustration can lead to behavioral difficulties that can disrupt the classroom environment. Children may exhibit impulsive behavior, over- or under-react to sounds in the environment, become oppositional to authority figures, or often get involved in fights with others as a result of experiencing trauma (Ford, Connor, & Hawke, 2009). Additionally, children with behavioral problems are likely to have relationship difficulties not only with their peers but also with adults in their life (D'andrea et al., 2012). Unfortunately, such behavioral and interpersonal difficulties are often met with ineffective responses that exacerbate the problem. For example, teachers are more likely to respond to children with behavioral problems with less support and more criticism, and punishment than their counterparts (Henricsson & Rydell, 2004), while foster children with behavioral difficulties face the added risk of multiple placements (Fisher, Burraston, & Pears, 2005).

Attributions of Children's Behavior

A potential mechanism that impacts the effectiveness of adults' responses to children's behaviors is attributions. Attributions refer to how individuals assess the causes of behavior and how they respond to that behavior. For example, according to the social information processing (SIP) theory, interpersonal emotional and behavioral responses are determined by interpretations and evaluation of an individual's behavior (Milner, 2003). Researchers have used attributions to explain the use of harsh and potentially abusive disciplinary practices by parents. According to this model, parents who attribute responsibility and hostile intent to their children for their misbehavior are more likely to evaluate the behavior as more blameworthy and respond with more harsh and abusive discipline (Beckerman, van Berkel, Mesman, & Alink, 2017). When parents' attributions of children's behavior are hostile, they are also less likely to identify alternative explanations for the behavior and instead attribute negative behavior to internal, stable, and global child characteristic (Beckerman et al., 2017).

In this regard, awareness of how trauma affects children's behavior may reduce adults' negative thoughts and feelings toward child misbehavior, helping them respond more effectively to children experiencing difficulties, though this is an empirical question. To the extent that high stress is linked to more negative attributions, reducing child serving professionals' stress may also contribute to more effective service provision.

Secondary traumatic stress

Trauma affects not only the individuals who directly experience the event but also those who are formally and informally involved in their care. There are emotional and psychological risks associated with providing consistent direct care to individuals affected by trauma.

Secondary traumatic stress (STS) is one such risk that especially affects professionals working in child and family serving systems. STS is defined as “ the natural, consequent behaviors and emotions resulting from knowledge about a traumatizing event experienced by a significant other. It is the stress resulting from helping or wanting to help a traumatized or suffering person” (Figley, 1999). Indirect exposure to trauma such as that frequently experienced by helping professionals is linked to stress related symptoms such as avoidance behaviors, sleep difficulties, irritability, dissociative symptoms, and experiencing flashbacks (Bride, 2004). In fact, the symptoms of STS can mimic those of post-traumatic stress disorder (PTSD) and include symptoms of avoidance, intrusive thoughts, and arousal (Bride et al., 2004; Figley, 1999). Similar to symptoms of direct exposure to trauma, STS can include irritability; difficulty planning and implementing work responsibilities; lack of concentration; feelings of numbness or detachment; sleep difficulties; changes in appetite; and increased use of substances.

Although any professional with a repeated exposure to working with traumatized individuals is at risk for STS, Bride and colleagues (2009) identified other risk factors, such as being female, high level of empathy, prior trauma exposure, social isolation, and gaps in training. On the other hand, protective factors include more years of experience, engaging in self-care, and using evidence-based practices to provide care (Craig & Sprang, 2010).

Resilience

Although a significant number of children and youth who have experienced ACEs develop negative outcomes, others are able to cope better with the traumatic events and not experience mental health problems (Collishaw, Maughan, & Pickles, 2007). As such, children who have experienced trauma and yet exhibit little to no problems in emotional, behavioral,

social, and academic domains are considered resilient. The operational definition for resilience varies across research (Afifi & MacMillan, 2011). The most common measure of resilience involves not having a diagnosable mental disorder; however, resilience can be understood to an extent through the study of protective factors (Afifi & MacMillan, 2011).

Individuals may be ‘resilient’ in one aspect of functioning but not another (Afifi & MacMillan, 2011). Notably, resilience is considered a process that develops over time and may not be consistent among all domains of functioning. For instance, a child who is functioning at a normal or average level in a specific domain such as academics may be struggling in the social domain (see meta-analysis by Kraaijenvanger et al., 2020). Therefore, resilience status is not constant and varies based on time and development (Afifi & MacMillan, 2011).

To understand resilience further, Kitano and Lewis (2005) identified four factors that influence resilience: compensatory, risk, protective, and vulnerability factors. Compensatory factors include those that are advantageous for resilience regardless of the level of risk such as “healthy family functioning.” Risk factors such as experience of abuse and neglect, and protective factors such as adaptive coping skills are dependent on risk level. While risk factors likely yield negative results whether the individual is exposed to high or low risk, protective factors have the most buffering effect in the presence of a high risk. Unlike protective factors, vulnerability factors have the most detrimental effects in the presence of high risk (Kitano & Lewis, 2005).

Relatedly, research in developmental psychopathology identifies a relationship between risk and protective factors present in resilience (Masten & Curtis, 2000). Specifically, resilience is considered an adjustment to events such as ACEs that interrupt the normal development.

Importantly, resilience is a normal adaptive developmental process that is present in all children

contrary to the popular belief that it is limited to a select few (Masten, 2001). In this sense, resilience is seen as comprising both personal strengths and environmental protective factors (Benard, 2004). Notably, there is a nature-nurture interplay in which children with certain dispositions may have an increased access to protective factors than others. For example, children who are even-tempered are more likely to get social support from an adult, which has been found to be a protective factor (Hass & Graydon, 2009). In a different instance, prenatal exposure to drugs and alcohol is linked to maladjustment later in life. A combination of prenatal exposure to substances and environmental stressors such as being abused and displaced from home puts foster care youth at a disadvantage and lessens their likelihood of resilience.

Additionally, optimism and readiness for independent living are two important aspects for the development of resilience despite adversity. While optimism is considered a personal attribute, readiness for independent living depends on the nurturing capacity of the environment in which the individual is placed (Luthar et al., 2000). Psychosocial factors that support the development of resilience include availability of social support, life-skills competence, and older age at the time of discharge from foster care (Jones & Morris, 2012), as well as environmental factors including effective parenting, and effective school systems (Masten, 2006). At the individual level, high self-esteem, internal locus of control, external attributions of blame, and individuals' coping strategies are found to be precursors to resilience despite experience of adversities (Margolin, 2005). Personality traits, intelligence, self-efficacy, coping abilities, appraisal of maltreatment, and life satisfaction have also been found to serve as protective factors related to resilience (Afifi & MacMillan, 2011).

Trauma Informed Approach

Despite the prevalence and impact of childhood adversity or traumatic life experiences, ACEs science is not common knowledge to the general population and a large number of professionals alike. For example, in a survey administered to pediatricians, three-quarters indicated that they had no knowledge of the ACE study (Kerker et al., 2016). While there have been growing initiatives to disseminate ACEs science both at state and national levels, awareness and implementation are still in development in various care settings.

The growing awareness of the pervasive nature of childhood adversity and its associated negative impact calls for a trauma-informed care approach. The National Child traumatic Stress network defines trauma-informed care as follows:

“A trauma-informed child- and family-service system is one in which all parties involved recognize and respond to the impact of traumatic stress on those who have contact with the system including children, caregivers, and service providers. Programs and agencies within such a system infuse and sustain trauma awareness, knowledge, and skills into their organizational cultures, practices, and policies. They act in collaboration with all those who are involved with the child, using the best available science, to maximize physical and psychological safety, facilitate the recovery of the child and family, and support their ability to thrive.”

Awareness of ACEs and their impact is crucial to identify and engage in trauma informed practices. A trauma informed approach could enhance the quality of care, aid in preventing re-victimization, and promote resilience in individuals with a history of trauma. Awareness may also improve understanding and intervention regarding secondary traumatic stress among formal and informal care givers. Given that personal history of trauma may increase vulnerability to vicarious traumatization, professionals identifying their own history of trauma may aid in

preventing and addressing vicarious trauma that may be unique to helping someone with similar experiences. Trauma-specific training may also provide the opportunity to identify triggers and secondary stress symptoms that may interfere with a professional's well-being as well as their effectiveness in providing services.

Moreover, in order to develop evidence-based prevention and intervention programs, ACEs science first needs to be incorporated into multiple systems that are tasked with serving individuals who may have experienced early life trauma. In this regard, knowledge is an important and powerful first step in fueling a necessary change in addressing the impact of early life trauma more effectively within various child-serving systems, including child welfare, education, health care, and juvenile justice (Ko et al., 2008).

While the majority of early life trauma occurs in the context of relationships, so does healing (Masten 2006). Trauma informed approaches try to restore the basic tenets of secure relationships: safety, connection, and the ability to manage emotions that are often lost in relational trauma. Safety, which is one of the core developmental needs, is needed to establish trust and attachment early on in life. Unfortunately, when relational trauma such as maltreatment by a parent occurs, children learn to fear and mistrust adults at an early age. Subsequently, such children may have difficulty engaging adaptively with other adults in their life including teachers and child welfare workers trying to help them (Layne et al., 2011). It is therefore imperative to create a safe place for them in order to facilitate healing and promote resilience. In an effort to ensure physical and emotional safety, a professional caring for children with a history of trauma needs to develop attributes such as consistency, reliability, honesty, predictability, transparency, and availability (Bath, 2008).

The second component of secure relationships that trauma informed care strives to restore is connection. Positive relationship or connection with others is necessary for a healthy psychosocial development (Bath, 2008). Early life trauma interferes with the development of positive relationships especially in cases where children suffer the loss of attachment figures through child maltreatment and separation. Notably, the presence of a positive connection with a caring adult is associated with resilience (Benard, 2004).

The third component is the development of emotion regulation skills. Given that trauma is linked to emotion dysregulation, while the ability to regulate emotions serves as a protective factor against the negative outcomes of trauma (Alvord & Grados, 2005), it is worthwhile for child serving professionals to teach individuals effective emotion management skills. Fortunately, the capacity to learn emotion management skills is sustained beyond childhood.

Preliminary Data

The training intervention described herein was piloted with college students across 10 group sessions and their feedback was incorporated to develop a region-specific training program. Ninety-three participants attended a 3-hour workshop on ACEs and Resilience. A pre- and post-evaluation was administered to measure participants' self-assessed knowledge. Additionally, applied skills were assessed using vignettes and participants provided qualitative feedback on the training. The prevalence of ACEs in the pilot sample can be seen in Figure 1 below. There were significant changes in the reported knowledge and understanding of trauma and resilience as a result of the workshop. Moreover, based on evaluation of workshop results, 52% of participants strongly agreed with the statement that the training would be useful in their desired career while 76% agreed that it would be helpful in their personal life. Seventy-one percent of participants also indicated that they would be interested in a child advocacy certificate

program if it was offered at their university. Notably, a wide range of academic majors were represented in the pilot sample, including veterinary medicine, agriculture, archaeology, criminology, business, engineering, law, education, medicine, special education, psychology, nursing, and speech pathology.

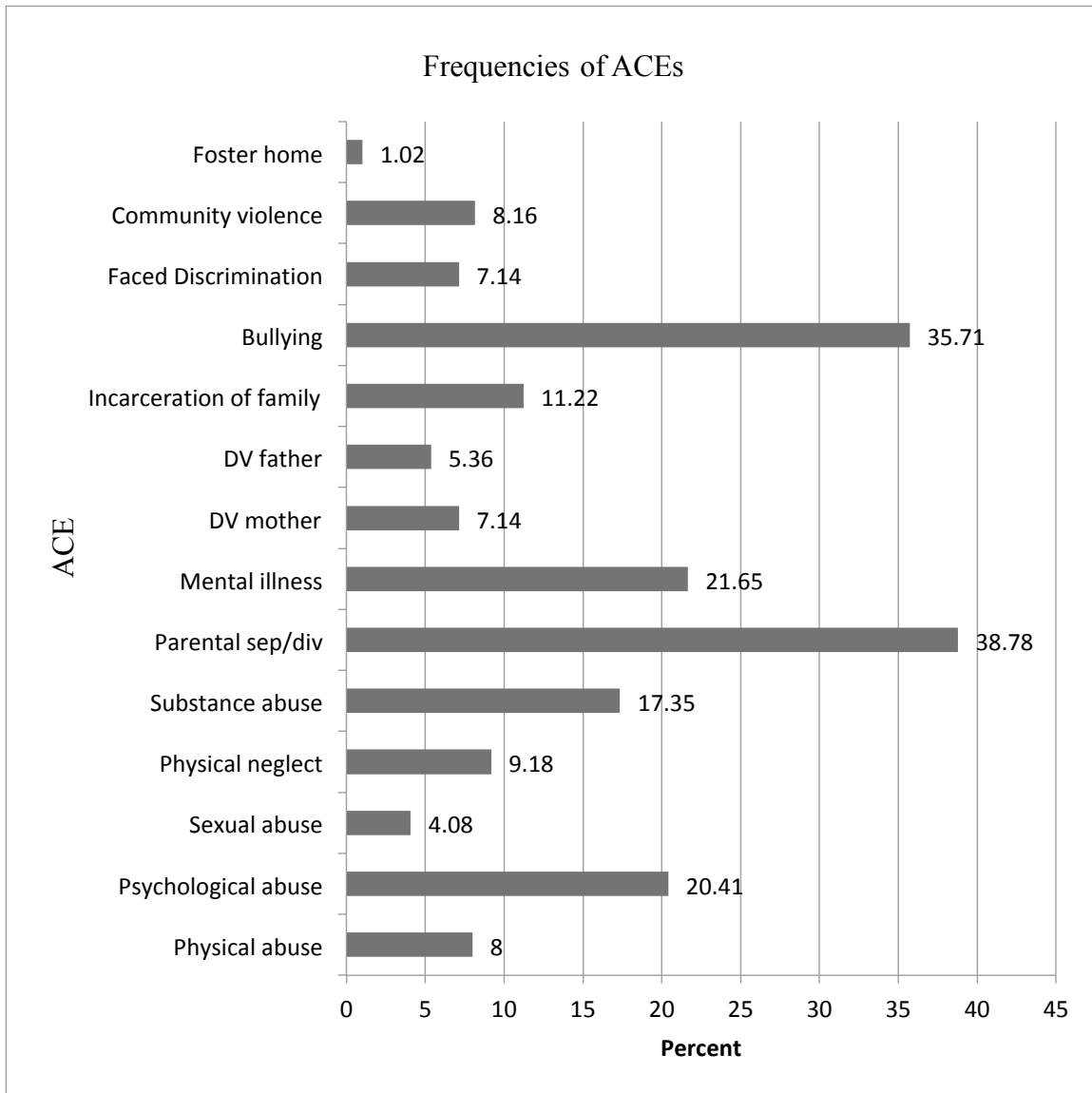


Figure 2. The prevalence of ACEs in the pilot sample

Present Study

This project promotes the public health aims of prevention and early intervention of traumatic stress, as well as fostering resilience in participants by improving awareness. To achieve this purpose, the current study presents and evaluates a training intervention with the following goals: (a) increase participants' knowledge of trauma, developmental consequences, and resilience factors; (b) change attitudes and attributions regarding trauma-related behaviors; and (c) increase participants' knowledge of secondary traumatic stress and methods for self-care within high-risk professions. For an overview of the training intervention, see Appendix A.

Notably, trauma concepts and examples used during the training highlight underserved groups such as children in the welfare system who have unmet mental health needs (NIMH, 2001). Children involved in the child welfare system have a higher risk for emotional, behavioral, and social problems, with those from ethnic minority groups and those living in poverty particularly affected. This context requires that systems and individuals serving children and youth grow increasingly trauma informed, not only to improve service outcomes but also to address secondary stress proactively. Trauma knowledge may enhance how professionals take care of themselves as well as the individuals they serve. As such, the training targeted aspiring or early professionals with some experience working with children and families, including educators, and child-serving organizations.

Hypotheses

1. To address the first goal of the study, we hypothesized that the training would increase participants' knowledge on the core concepts of trauma, as indicated by higher post-workshop scores on the Childhood Trauma Knowledge measure developed for the project.

2. To address the second goal, we hypothesized that the training would increase participants' trauma-informed beliefs, as indicated by the Attitudes Related to Trauma-Informed Care (ARTIC), and decrease hostile attributions regarding child behaviors, as measured by the Written Analogue Questionnaire (WAQ).
3. To address the third goal, we hypothesized that the training would increase participants' adherence to self-care strategies at follow up (1-week and 1-month post-training), compared to baseline (i.e., pre-training).

CHAPTER II

METHODS

Participants

Individuals working within child and family serving professions were recruited through ACEs Connections, an online social network supporting ACEs initiatives across different regions of the United States and internationally. College students who are enrolled in other majors that involve working with children and youth, such as social work, nursing, and education, were also invited to participate in the study by alerting departments about the study via email and providing an email link. A list of participants can be provided to the professors who agree to provide some extra credit for student involvement in research. In addition, university departments that are known to provide workshop-style sessions (e.g., Residence Life, Cultural Diversity) were informed about the free training so that they could encourage participation of students who plan to work in child-serving fields.

Although numerous ACEs trainings have been conducted nationwide, actual effect sizes are not reported in the extant literature. Based on prior research on self-ratings following training a moderate effect size is expected (Arthur, Bennett, Edens, & Bell, 2003). For a repeated-measures F test with a .05 a-level of significance, a sample size of 40 would be required to achieve 80% power to detect a medium effect size (Cohen, 1988).

Measures

Exposure to ACEs

The original ACEs measure is a 10-item survey that divided adverse experiences into three categories: abuse, neglect, and household dysfunction. There are three categories of child abuse: emotional abuse, physical abuse, and sexual abuse. Neglect has two categories: physical and emotional. There are five categories under household dysfunction: mental illness, incarcerated relative, mother treated violently, substance abuse, and divorce/separation. This study used the original ACEs questions as well as questions regarding placement in foster care, father being treated violently, and bullying that were added as a result of a pilot study conducted with undergraduate students (See Appendix B). All of the questions used to determine childhood experiences were introduced with the phrase “While you were growing up during your first 18 years of life...” Participants were defined as exposed to a category if they respond “yes” to 1 or more of the questions. Previous studies have reported a high internal consistency of .88 for the original ACE measure (Murphy et al., 2014).

Trauma Knowledge

While measures assessing perceived knowledge of trauma or confidence in implementing trauma informed care have been used in prior research, an objective measure of knowledge about childhood trauma could not be located in the literature. Given that self-report measures can be subject to social desirability bias (Lotzin et al., 2018), and an objective measure allows for a more accurate assessment of knowledge uptake, the *Childhood Trauma Knowledge (CTK)* measure was developed for this project (See Appendix C). The CTK is a 12-item multiple-choice measure assessing the core concepts of trauma outlined by the NCTSN (NCTSN Core Curriculum on Childhood Trauma Task Force, 2012) that are taught in the training. A sample

item includes “Which of the following describes the nature of traumatic experiences?”

Participants select which response option or options match a core concept or may select “I am not sure”. The CTK was administered pre- and post-ART. In this study the CTK yielded Cronbach’s α of .60, an acceptable internal consistency for an exploratory study (Nunally & Bernstein, 1994) that indicates that there is an association among the twelve items corresponding to concepts, but one that is not so high as to indicate redundancy.

Trauma-Informed Attitudes

To measure attitudes consistent with a trauma informed approach, participants were administered the *Attitudes Related to Trauma-Informed Care (ARTIC)* measure. The ARTIC has been used to measure change as a result of intervention (Baker et al., 2016) and has an excellent internal consistency ($\alpha = .91$) and good test-retest reliability of .73. The ARTIC is not in the public domain and thus is not included as an appendix; multiple forms of the measure are available from traumaticstressinstitute.org.

Attributions

To measure attributions for child behavior, participants were administered a modified version of the Written Analog Questionnaire (WAQ; Johnston, Hommersen, & Seipp, 2009), a measure of parent attributions about child behavior using vignettes. The WAQ has been adapted for use with other populations such as teachers (McAuliffe, Hubbard & Romano, 2009). After reading each vignette, participants rated items measuring hostile attributions regarding child responsibility, intent, and blame (adapted from Chavira et al. 2000). The WAQ was administered pre- and post-training (see Appendix D). Previous studies have reported Cronbach’s α of .64 - .87 for all scales of the WAQ, indicating acceptable reliability (Jacobs et al., 2017).

Self-Care Assessment Worksheet (SCAW)

Participants' level of engagement in self-care was assessed at baseline (pre-training) and at follow-up using the SCAW. The SCAW assesses individual's level of self-care in six domains: physical, psychological, emotional, spiritual, workplace or professional, and balance (Saakvitne et al., 1996). Each of the domains presents a different number of items assessing different self-care strategies. Participants were asked to rate each self-care strategy on a scale of 1 (*never occurs*) to 5 (*frequently occurs*). Sample items on the SCAW include: *get enough sleep* (physical), *make time for self-reflection* (psychological), *spend time with others whose company you enjoy* (emotional), *find a spiritual connection or community* (spiritual), *take a break during the workday* (professional), and *strive for balance within your work-life and workday* (balance). Previous studies have reported strong positive correlations of .65-.91 for all scales of the SCAW, indicating acceptable reliability (Weekes, 2011).

Training Evaluation

Participants were administered a survey at the end of the training to evaluate the program. Participants were asked to indicate their level of agreement with nine statements on a likert scale of 1 (strongly disagree) to 5 (strongly agree). The statements will assess whether the objectives of the training were defined and met, level of interaction, relevance of topics, organization, utility in personal and professional life, trainer knowledge, and time allocation. A score of 4 or more on the 5-point scale was considered as a positive evaluation. Additionally, participants were asked to provide qualitative feedback on the training.

Applied Skills Check

Participants were asked to complete four analogue vignettes depicting cases of ACEs. Each vignette illustrates cases of trauma and behavioral indicators for different age groups: preschool, elementary, middle school, and high school. Participants were divided into groups of 3-4 and asked to identify the number of ACEs as well as behavioral indicators of trauma in the vignettes. Participants were also assigned 3 resilience factors per group and asked to identify ways of enhancing their specific factors in their cases. Resilience factors include positive attachment with a primary caregiver, high self-esteem, self-efficacy, coping-skills, social support, and a supportive school and community environment.

Procedure

A 3-hour workshop was provided that is modeled after the National Child and Traumatic Stress Network (NCTSN Core Curriculum on Childhood Trauma Task Force, 2012) trauma informed training for child welfare and the Incorporating Trauma Informed Practice and ACEs into Professional Curricula Toolkit developed by the Philadelphia ACE Task Force. The training addresses the 12 core concepts outlined by the NCTSN for understanding traumatic stress responses which include: the complexity of trauma, personal and environmental contextual factors in which trauma occurs, trauma aftermath, range of trauma reactions, danger and safety as core concerns, impact of trauma on family and broader systems, protective factors, post trauma experiences, developmental neurobiology, the role of culture, legal and ethical issues, and secondary traumatic stress (NCTSN Core Curriculum on Childhood Trauma Task Force, 2012).

A pilot training was administered with 93 undergraduate students. Feedback gathered from pilot participants was used to modify the training for the current project, including addition of ACEs categories to the original measure. Current participants completed a pre-workshop

survey, attended a presentation on childhood adversity, resilience, and secondary traumatic stress, watched relevant videos, participated in group activities to identify behaviors associated with trauma and resilience factors, and completed a post-workshop survey. To assess adherence to self-care, participants were asked for permission to follow up with them at 1-week and 1-month post training, and offered a subscription to “Stop, Breathe, Think,” a meditation application as an incentive.

This study was approved by Mississippi State University’s Human Subjects Research Institutional Review Board. See Appendix I for a copy of the approval letter.

CHAPTER III

RESULTS

Sample Description

Sixty-seven percent of participants self-identified as female, thirteen percent identified as male, and twenty percent did not identify. A wide variety of child-serving professionals were represented in the sample and included: after-school-care providers; counselors; social workers; educators; psychologists; children and youth program directors; and pediatric nurses. The amount of experience in the field also varied, ranging from 0-2 years to 10+ years. Descriptive statistics are listed in Table 1. Descriptive analysis also revealed that fifty-five percent of participants had experienced at least one ACE while twenty-three percent had four or more ACEs. Twenty-two percent had an ACE score of '0'. Prevalence of specific types of ACEs are presented in Table 2.

A one-way multivariate analysis of variance (MANOVA) for repeated measures was conducted with the factor Time (pre vs. post) as the independent variable. The dependent variables were the scores obtained on the CTK (trauma knowledge measure), WAQ (attributions measure), and ARTIC (trauma-informed attitudes measure). Effect sizes were calculated using partial eta-squared (η_p^2). Preliminary analysis revealed a significant multivariate effect of Time, Wilks' $\lambda = .447$, $F(3, 20.000)$, $p = .001$, $\eta_p^2 = .553$. The results indicated that there is a statistically significant difference in trauma knowledge, and attitudes between pre- and post-training. Given the significance of the overall test, the univariate main effects were examined.

Table 3 reports the means and standard deviations for trauma knowledge, negative attributions, and attitudes measured at pre- and post-training.

Table 1

Demographic Characteristics of Participants

Participants (N = 61)	N (%)
Gender	
Male	8 (13.1)
Female	41 (67.2)
No response	12 (19.7%)
Race	
White/Caucasian	34 (57.4)
Black/African American	21 (36.1)
Asian	5 (9.8)
Native Hawaiian or Pacific Islander	1 (1.1)
Hispanic	1 (1.6)
Alaskan or AN	1 (1.8)
Other	3 (6)
Positions	
Direct staff	32 (65.3)
Administrative	17 (34.7)
Length of experience in years	
0-2	24 (48)
3-5	6 (12)
6-10	4 (8)
10+	15 (32)

Note. Race percentages exceed 100 since participants could self-identify by endorsing multiple races.

Table 2

Prevalence of ACEs in the sample

ACEs type	%
Emotional abuse	32.8
Physical abuse	13.1
Sexual abuse	13.1
Domestic violence towards mother	14.8
Domestic violence towards father	16.4
Parental substance abuse	39.3
Parental mental illness	29.5
Incarceration of family member	9.8
Neglect	21.3
Divorce/separation	41.0
Bullying	32.8
Racial discrimination	4.9
Community violence	32.8
Foster care	18.0

Table 3

Means and standard deviations of dependent variables at pre- and post-test

Measure	Pre-test	Post-test
Trauma knowledge	15.435 (1.021)	18.130* (.675)
Trauma-informed attitudes	4.842 (.111)	5.591* (.208)
Attributions	41.522 (1.873)	36.217 (1.989)

Note. Standard deviations are shown in parentheses. Significant changes are marked with asterisks.

Trauma Knowledge

The results from the univariate analysis indicated a statistically significant difference in trauma knowledge from pre- to post-training, $F(1,22) = 6.418$, $p = .000$, $\eta_p^2 = .226$. In support of Hypothesis 1, trauma knowledge scores increased from pre- to post-training. Given the limitations of querying subjective perceptions of learning, the CTK was used as an objective

measure of participants' knowledge uptake. Items on the CTK were derived from the 12 core concepts of trauma provided by the NCTSN and used in the current training. The changes in CTK question items are reflected in Figure 2. There were significant changes in four items. Item 8 asks participants to identify an example of how trauma impacts development, item 9 asks participants to identify maladaptive neurobiological responses to trauma, item 10 asks for the impact of culture, and item 11 assesses for knowledge of trauma responses that indicate challenges to the social contract. Participants had the lowest pre-test and post-test scores on the following three items: item 5 asks about situations that bring up the primary concerns of children who have experienced trauma, item 6 asks participants to identify the core trauma concept illustrated in an example, and item 7 requires knowing the role of protective and promotive factors.

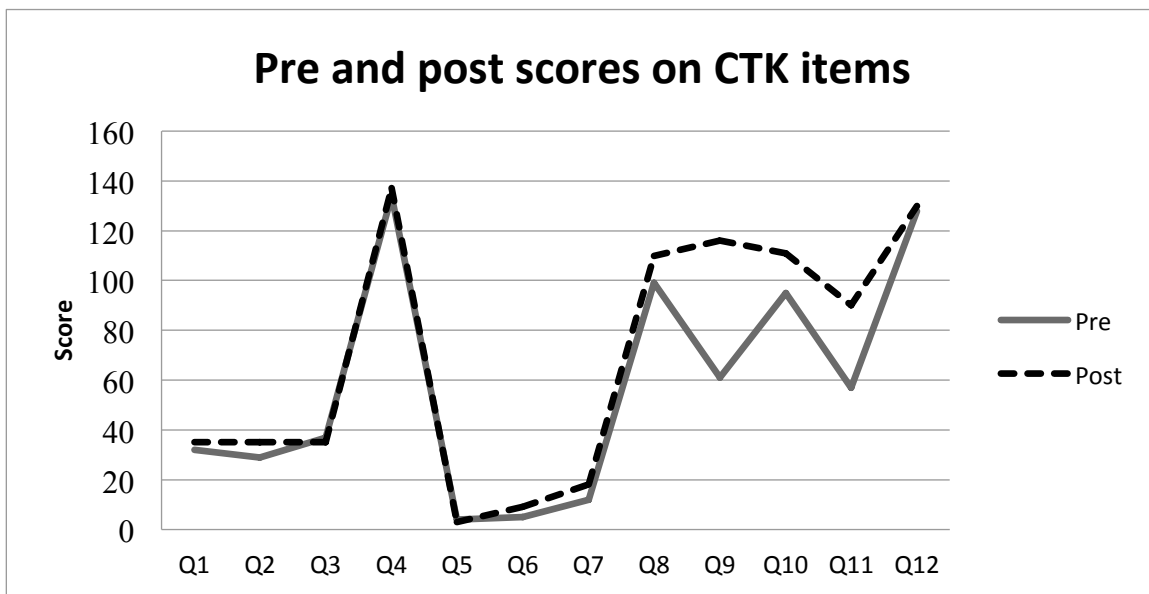


Figure 3. Pre- and post-training scores in childhood trauma knowledge (CTK) by item

Attitudes

The results indicated that there was a significant difference in trauma-informed attitudes between pre- and post-test, $F(1,22) = 11.014, p = .003, \eta_p^2 = .334$. In support of hypothesis 2a, trauma-informed attitudes increased from pre- to post training. Participants' responses became more consistent with trauma-informed care after the training.

Attributions

Our results indicated no significant difference on attributions between the pre- and post-test scores, $F(1,22) = 3.558, ns$. After reading each vignette in the WAQ, participants rated items measuring child intent, the extent to which the participant felt the child was to blame, and child responsibility. Responses that endorsed intentional difficult behavior by the child, blamed the child, and held the child responsible for the behavior resulted in more negative/hostile attributions. The results indicated that negative attributions did not significantly decrease from pre- to post-training; therefore, hypothesis 2b was not supported. Although negative attributions did not significantly change from pre- to post-training, however, further analysis of the attribution factors revealed that blame was the only factor without significant change after the training. Specifically, a one-way repeated measures ANOVA revealed that intent and responsibility significantly changed from pre- to post-training.

Self-Care

Participants' self-care means for the five life domains assessed are presented in Table 4. The Self-Care Assessment Worksheet (SCAW) has a rating of '1' to '5': 1 – It never occurred to me, 2- Never, 3-Rarely, 4-Occasionally, and 5- Frequently. On average, participants scored 3.48

on overall self-care indication rare to occasional practice. Participants scored highest on the workplace self-care ($M = 3.8$) and lowest on psychological and spiritual care (both $M = 3.2$). Given that there was a significantly low response rate on the 1-week and 1-month follow-up surveys ($N = 6$; 12%), self-care (hypothesis 3) was omitted from overall analyses. Participants' average self-care scores at the time of the training are presented in Table 4.

Training Evaluation

Participants indicated their level of agreement with nine statements on a Likert scale of 1 (*strongly disagree*) to 5 (*strongly agree*). The statements assessed whether the objectives of the training were defined and met, level of interaction, relevance of topics, organization, utility in personal and professional life, trainer knowledge, and time allocation. A score of 4 or more on the 5-point scale was considered as a positive evaluation. Participants scored an average of 4.61, indicating an overall positive evaluation of the training. Table 5 reports averages measuring level of agreement with each statement. Participants also provided qualitative feedback on the training. Notable highlights were regarding the interactive aspects of the training as well as focus on self-care. Participants identified making the training shorter as a suggestion for improvement. Participants' average evaluations of the training's objectives are presented in Table 5. Themes in participants' qualitative feedback are presented in Table 6.

Table 4

Participants' self-care means at the time of the training

Self-care domain	Mean score
Physical care	3.5
Psychological care	3.2
Emotional care	3.7
Spiritual care	3.2
Work-place self-care	3.8

Table 5

Participants' workshop evaluation ratings

Statement	Average Rating
The objectives of the training were clearly defined	4.59
Participation and interaction were encouraged	4.57
The topics covered were relevant	4.70
The content was organized and easy to follow	4.60
The training experience will be useful in my desired career	4.68
The trainer was knowledgeable about the training topics	4.78
The training objectives were met	4.68
The time allocated for the training was sufficient	4.32
The training experience will be useful in my personal life.	4.59

Note. 1 = Strongly Disagree; 5 = Strongly Agree

Table 6

Participants' qualitative feedback

Strengths	Areas for Improvement
The relevance of the topic, information given	If survey must be taken before training, survey should be sent out at least 5 business days in advance, if possible.
Conversation and real-life examples	It would be nice to have a little more variety to the presentation.
The videos of real-life people, the empathy from the presenter in identifying that the work I do is challenging, the ability to share my feelings.	More information on how to apply trauma informed care with no therapy training.
The information provided is very relevant to the work our department does.	More time to role-play situations
Suggestions to help me with coping skills	Shorter time if possible.
Interactive	More small-group activities
The flash card activity in which we talked about how to handle the situation.	More hands-on activities
Learning how to teach resilience to kids in my care	
How it relates to my job.	
It helped me understand my personal life.	
I like that I was given skills to build relationships with kids who experience trauma	
It taught me to care more about the kids I work with who act out.	
The knowledge that we need self-care	
It helped me think about things that I wouldn't usually think about on my own.	
The openness and how examples that were used were those of real clients.	

CHAPTER IV

DISCUSSION

The current study examined the effectiveness of a brief awareness training workshop in improving childhood-trauma knowledge, and in changing attitudes and attributions regarding trauma related behaviors. The study also aimed to increase participants' knowledge of secondary trauma and encourage self-care among high-risk professionals. Overall, our results expand the findings of the pilot ART study, which indicated that the training may improve awareness and promote trauma-informed attitudes.

The overall response to the training was positive. Participants strongly agreed that the training was useful and that the topics covered were relevant both in their personal and professional realms. Participants found the interactive aspects of the training that involved identifying ACEs and resilience factors from cases presented as the most helpful. They also highlighted the focus on self-care as unique and impactful given the usual focus on service improvement for other trainings they reportedly received. The length of the training was an area of improvement suggested most often; participants perceived the training being long, which posed a challenge for scheduling during their regular work hours.

Consistent with hypothesis 1, there was a significant change in trauma knowledge score between pre- and post-training. Before the training, the average score on the trauma knowledge test was about seventy percent. After the training, participants' scores significantly increased up to about eighty-two percent, on average. Overall, these results indicate the effectiveness of this

training on knowledge uptake and build on existing research that highlights the feasibility of bridging knowledge gaps through brief trauma trainings (Goldstein et al., 2018). In this training, core concepts 8 through 11 appear to have been learned better. Participants' gained more knowledge regarding developmental impact, neurobiological responses to trauma, the impact of culture, and challenges social contract appear to have been learned better. It may be that these concepts, having less to do with the usual work tasks of this group of professionals, facilitated recall due to the known benefit of novelty (Kishiyama & Yonelinas, 2003).

In contrast, participants tended to respond incorrectly to items 5, 6, and 7 during both the pre- and post-training assessment. This suggests that concepts regarding identifying situations that bring up the primary concerns of children who have experienced trauma, recognizing how the impact of trauma extends to family and broader caregiving systems, and defining the role of protective and promotive factors are areas of improvement for the training. Given that answering these items correctly required specific definitions, professionals' experience in their work with children/families were less likely to help them. Indeed, research in memory and cognition indicates that prior knowledge can proactively interfere with new learning, whereas memory is better for items that are novel (Kishiyama & Yonelinas, 2003). For instance, safety is a primary concern of children exposed to trauma (core concept 5), but direct-service workers are likely aware of multiple concerns facing the children and families they help.

To improve the impact of the training across relevant objectives in the future, pre-test scores could be used to identify areas that need emphasis or, to the contrary, require less time during the training. To the extent that increasing trauma awareness has been identified as a necessary first step in combating the impact of adverse childhood experiences (Bethell et al.,

2017), increasing trauma knowledge may increase positive attitudes toward trauma-informed approaches in client or patient care (Lotzin et al., 2018; Salyers et al., 2004).

Relatedly, and partially consistent with hypothesis 2, participants shifted their attitudes in the direction of a more trauma-informed lens when evaluating difficult child behaviors. Overall, at the end of the training participants reported more trauma-informed attitudes regarding underlying causes of problematic behavior, responses to problematic behavior, and on-the-job behavior. Participants responses regarding underlying causes of children's problem behavior were more likely to include external and malleable factors, such as history of difficult life events. They also reported more emphasis on responding to problematic behaviors by using flexibility, creating safety, and building connections in response to problematic behaviors. In relation to on-the-job behavior and self-efficacy, participants endorsed more empathy-focused versus control-focused behaviors. These results support existing evidence for positive outcomes of similar trainings. In fact, trainings that focus on attitude changes have been used to reduce behaviors that can inadvertently retraumatize individuals who have a history of trauma. For example, research supports the use of such trainings to reduce the use of restraints and seclusions in residential treatment programs (van Doeselaar, Slegers, & Hutschemaekers, 2008). Additionally, following the findings that trauma informed organizations have better outcomes in mitigating the impacts of ACEs (Baker et al., 2016), changes in attitude towards trauma-informed approaches may also improve professional effectiveness and decrease job-related stress.

Although, participants' overall negative attributions regarding difficult child behaviors presented in the vignettes did not change from pre- to post- training, negative attributions of responsibility and intent decreased. These specific results indicate that at the end of the training participants assigned less responsibility and intent to the child's behavior, supporting attitudes

favorable to trauma informed approach. However, our results suggest that awareness of child traumatic stress responses made a difference for only some aspects of participants' attributions regarding child behavior. While knowledge is an important factor in attributions, it may be insufficient for change as it is likely that there are additional factors that account for its maintenance. For example, strong negative emotional reactions often associated with problematic behaviors, such as anger can impact causal interpretations (Lucas, Collins, & Langdon, 2009) and elicit responses that may be inconsistent with trauma informed approaches. To the extent that attributions impact how effectively people respond to difficult child behavior (Milner, 2003), direct attributional retraining may be an important aspect of trauma trainings that merits more attention. It is also plausible greater intensity and dosage of intervention is needed to bring about a complete change in social cognition.

Regarding self-care, most of the participants identified the self-care section as a unique focus of this training and expressed appreciation for attention given to the topic. During the workshop, participants were asked to identify a self-care activity in one of the four domains assessed (physical, psychological, emotional, or spiritual) that they would commit to implement in the coming month. Participants then opted in to be contacted via email in 1 week and 1 month to check on their engagement in self-care. Overall, there was a generally low level of self-care at the time of the training and only six participants (10%) responded back to the 1-week and 1-month follow-up surveys regarding their self-care. The low response rate to follow up surveys is consistent with other research that reports difficulty collecting follow-up data after providing a similar training. For example, Kenny and colleagues (2017) reported a 12% response rate to follow-up efforts.

Limitations and Directions for Future Research

Although our results demonstrate that the training was effective in increasing knowledge and changing attitudes, the current findings should be considered within the context of various limitations. First, the Childhood Trauma Knowledge measure developed for this study has not yet been validated and its internal consistency is merely acceptable for an exploratory study. As such, it needs to be improved to have better psychometrics for use in future studies. To assess the content validity for example, the CTK could be provided to the ACEs Connections community that supports similar training initiatives.

Second, one of the major challenges of providing this training was the scheduling of training sessions. Finding a 3-hour block of time for child serving professionals to commit to being present was difficult. Given that this difficulty is not unique to our training (Kenny, Vazquez, Long, and Thompson, 2017), we join our colleagues in identifying organizational or system-wide support as prerequisite to making such training accessible to staff. To tackle some of the time constraints for staff trainings, it could prove beneficial to assess baseline knowledge of participants about the training objectives and modulate the different sections of the training. For example, if a group of participants has a basic understanding of the biological underpinnings of trauma, less time can be allotted to that section of the training. This would help with the length of the training especially since time has been a major hindrance for professionals interested in taking the training.

Third, this study did not assess retention of knowledge over time. Future research could further evaluate the effectiveness of similar trainings by assessing the stability of the training effects over time through periodic follow-ups. Finally, although the current study attempted to incentivize follow up-response by offering subscription to a meditation application, future

research might improve the outcome through other incentives with potentially more appeal. For example, providing continuing education units or certification for participants at the completion of the follow-ups might also provide more meaningful incentives for professionals in relevant fields. Alternatively, participants could be compensated financially for their time after completing the follow-ups.

Despite the present limitations, this study contributes to research in workforce development by offering a training intervention with feasible and scalable components and measurable outcomes. Our findings also highlight professionals' appreciation for the time devoted to secondary traumatic stress and proactive self-care. Their responses, including rare follow-up, suggest a need for systemic components for stress-reduction. This is consistent with research in the social determinants of health (Kaplan, 2019). A balance between individual strategies and organizational investment may protect already stressed individuals from feeling blamed, and blaming themselves, for coping challenges. Overall, our results provide preliminary evidence that brief trainings such as ART, can help integrate trauma-informed concepts and attitudes into a wide variety of child and family serving organizations.

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APPENDIX A
ADVERSITY AND RESILIENCE TRAINING OUTLINE

Learning objectives

1. Increase awareness of adverse childhood experiences, impact of childhood trauma, and resilience factors.
2. Understand and apply trauma informed care principles to address trauma related behaviors
3. Increase participants' knowledge of secondary traumatic stress and develop recommendations for self-care within high-risk professions

Overview of presentation

Background on ACEs: impact and implications

Trauma

Resilience

Trauma-informed care

Secondary trauma

Information about resources available

Considerations before we get started...

Sharing personal experiences

Impact of topic

Anonymous data

Think pair share

Use of cell phones/laptops

Adverse Childhood Experiences (ACEs)

The largest scientific research project of its kind to date

A decade-long ongoing collaboration led by Vincent J. Felitti, MD, Robert F. Anda, MD, MS
Analyzing the relationship between multiple categories of childhood trauma and health and behavioral outcomes later in life.

Introduction video: <http://www.acesconnection.com/blog/what-are-aces-this-30-minute-locally-made-video-explains-this-complex-topic-in-simple-terms>

Adverse Childhood Experiences

Abuse (physical, emotional, sexual)

Neglect (physical, emotional)

Household dysfunction (mental illness, IPV, incarceration, substance abuse, divorce)

ACE Study (Anda et al., 1999)

Mechanisms for influencing health and well-being across lifespan

- a) Disrupt neurodevelopment
- b) Social emotional, cog impairment
- c) Health risk behaviors
- d) Disease, disability, social problems
- e) Early Death

HIPPOCAMPUS Our Memory Keeper

Is impacted by intense emotions and fear

When hyper-aroused or hyper-vigilant, we don't remember well

Helps us to assess whether an event is "truly dangerous."

Core Concept 9 – Neurobiology

CC 8 Trauma impacts developments

Impact on Learning

Organizing narrative material

Cause & effect

Taking another's perspective

Attentiveness

Regulating emotions

Executive functioning

Engaging in curriculum

CC 5 Danger & Safety (can't learn if you don't feel safe)

CC 6 Caregiving systems

CC 7 Protective & Promotive factors

Impact on Behavior

Reactivity & impulsivity

Aggression

Defiance

Withdrawal

Perfectionism

<https://www.youtube.com/watch?v=bFJHbCMV7kc>

CC1 Inherent complexity

CC2 Broad Context

CC4 Wide range of reactions

Vignettes depict trauma-related behaviors in different ages

- a) Signs of trauma in children 0-5
- b) Signs of trauma in children 6-12
- c) Signs of trauma in children 13-18

Note: Participants get into small groups for each vignette to identify number of ACEs and behaviors that may indicate trauma. Responses are then shared and discussed as a whole group.

Impact on Relationships

Relationships are developed through the emotional bond between the child & primary caregiver.

It is through this relationship we learn to:

Regulate emotions/ “self soothe”

Develop trust in others

Freely explore our environment

Understand that we can impact the world around us

Understand ourselves & others

CC 3 Secondary Adversities

CC 10 Culture affects meaning, response, recovery

CC 11 Challenged social contract

Trauma Informed Care

...delivers services, (mental health, legal, child welfare, education, public health, addiction, housing supports, vocational or employment counseling services, etc..) in a manner that

acknowledges the role that trauma, (violence and victimization) plays in the lives of many people seeking these services . . . (adapted from Harris and Falot, 2001)

Trauma is pervasive and its impact is far reaching and long lasting

Trauma affects how people approach services designed to help them

Services designed to help people can be and often have been inadvertently retraumatizing

Recovery and healing are possible

Protective factors facilitate healing and resilience

Healing occurs within the context of RELATIONSHIPS

CC 12 Providers in Distress

Pillars of TIC by Howard Bath

Safety

Emotional, relational, physical & psychological

Consider your setting

Consider how services are provided (consistency, transparency, affect and behavior of provider(s))

Consider the experience of the child and family

Provide opportunities for choice and control

Connections

Relationship between traumatized individuals and caregivers

Impact of the quality of relationships on healing

Association of adults with negative emotions

Managing Emotions

Emotion regulation skills and development

Impact of trauma on emotion regulation skills

Emotion regulation skills interventions

Resilience

- A. Definition: “The phenomenon of surviving and thriving in the face of adversity typically predictive of negative outcomes...” (Kitano & Lewis, 2005)
- B. Building Resilience
- a) One supportive adult
 - b) Positive Outlook
 - c) Problem solving skills
 - d) Hobby, interest, curiosity
 - e) Goals, hopes, dreams
 - f) Being needed by others
 - g) Positive memories, images to hold onto
 - h) <https://www.youtube.com/watch?v=-pnhFmdz-ig>
 - i) CC7 Protective and promotive factors can reduce the adverse impact of trauma
- C. Tips to promoting resilience
- a) Identify trauma triggers
 - b) Be emotionally and physically available
 - c) Respond, don't react
 - d) Avoid physical punishment
 - e) Don't take behavior personally
 - f) Listen
 - g) Teach child to relax
 - h) Be consistent and predictable
 - i) Be patient
 - j) Allow some control
 - k) Encourage self-esteem
- (Child Welfare Information Gateway. (2014). Parenting a child who has experienced trauma. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau)

Note: Participants get into small groups for each vignette used above to identify ways of promoting resilience in the cases. Responses are then shared and discussed as a whole group.

Secondary Trauma

- A. Definition: “Secondary Traumatic Stress (STS) is the emotional duress that results when an individual hears about the first-hand trauma experiences of another....” (National Child Traumatic Stress Network (NCTSN))
- B. CC 12 Working with trauma-exposed children can evoke distress in providers that makes it more difficult for them to provide good care
- C. Know the warning signs
- a) Increased irritability or impatience with others
 - b) Difficulty planning and implementing work responsibilities
 - c) Decreased concentration

- d) Denying that traumatic events impact clients or feeling NUMB or DETACHED (“I just don’t care.”)
 - e) Intense feelings or intrusive thoughts about others
 - f) Sleep problems
 - g) Changes in eating—more or less
 - h) Increased use of stimulants, alcohol, cigarettes, spending or food to make it through the day/week
- D. Self-Care
- a) Identify self-care strategies and activities
 - b) Develop safety plan
 - c) Information on local mental health services

APPENDIX B
ACES MEASURE

Adverse Childhood Experience (ACE) Questionnaire

Finding your ACE Score ra hbr 10 24 06

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household **often** ...
Swear at you, insult you, put you down, or humiliate you?
or
Act in a way that made you afraid that you might be physically hurt?
Yes No If yes enter 1 _____
2. Did a parent or other adult in the household **often** ...
Push, grab, slap, or throw something at you?
or
Ever hit you so hard that you had marks or were injured?
Yes No If yes enter 1 _____
3. Did an adult or person at least 5 years older than you **ever** ...
Touch or fondle you or have you touch their body in a sexual way?
or
Try to or actually have oral, anal, or vaginal sex with you?
Yes No If yes enter 1 _____
4. Did you **often** feel that ...
No one in your family loved you or thought you were important or special?
or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes No If yes enter 1 _____
5. Did you **often** feel that ...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes No If yes enter 1 _____
6. Were your parents **ever** separated or divorced?
Yes No If yes enter 1 _____
7. Was your mother or stepmother:
Often pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
Yes No If yes enter 1 _____
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
Yes No If yes enter 1 _____
9. Was a household member depressed or mentally ill or did a household member attempt suicide?
Yes No If yes enter 1 _____
10. Did a household member go to prison?
Yes No If yes enter 1 _____

Now add up your "Yes" answers: _____ This is your ACE Score

APPENDIX C
CHILDHOOD TRAUMA KNOWLEDGE

Please answer the following questions. A question may have more than one correct answer. If you are not sure about the answer to a question, you should choose the “I am not sure” response.

1. Which of the following describes the nature of traumatic experiences?
 - a. Traumatic experiences are complex
 - b. Traumatic experiences affect a small percentage of the population
 - c. Traumatic experiences are short-term
 - d. All traumatic experiences are life threatening
 - e. I am not sure

2. Which one of the following does **not** determine how individuals experience trauma?
 - a. Personal characteristics
 - b. Previous life experiences
 - c. Current circumstances
 - d. Toughness
 - e. I am not sure

3. Which of the following is true about childhood trauma?
 - a. Trauma does not affect very young children
 - b. Children do not remember trauma that happened when they were younger
 - c. Traumatic events often generate secondary adversities
 - d. Children have to be physically affected to suffer the consequences of trauma
 - e. I am not sure

4. Which of the following is a reaction to trauma? (Select all that apply)
 - a. Depression
 - b. Disruptive behavior
 - c. Academic difficulties
 - d. None of the above
 - e. I am not sure

5. Which of the following situations brings up the primary concerns of children who have experienced trauma?
 - a. Living in a neighborhood with gang violence
 - b. Poverty
 - c. Changing schools and moving residencies often
 - d. None of the above
 - e. I am not sure

6. After witnessing domestic violence between her parents, Claire acts aggressively when her brother wants to play with her. She does not feel close with either of her parents as she previously was, and her grades have started dropping significantly. Which core concept of trauma does Claire's reactions best illustrate?
- Developmental neurobiology underlies children's reactions to trauma.
 - Traumatic experiences affect the family and broader caregiving systems.
 - Challenges to the social contract
 - All of the above
 - I am not sure
7. What is the role of protective and promotive factors in trauma experience?
- They can reduce the adverse impact of trauma.
 - They can prevent trauma from happening.
 - They enhance children's post trauma adjustment only if there are no risk factors present.
 - All of the above
 - I am not sure.
8. Which one of the following is an example of how trauma impacts development? (Select all that apply.)
- An adolescent loses motivation for higher education.
 - A 7 year old starts spending break time quietly seated next to his teacher
 - A 3 year old who recently acquired language stops speaking
 - None of the above.
 - I am not sure
9. Which of the following indicate(s) a maladaptive neurobiological response to trauma? (Select all that apply)
- Startling to loud voices.
 - Difficulty managing emotions
 - Poor memory
 - All of the above
 - I am not sure

10. Which of the following is impacted by culture? (Select all that apply)
- a. The meaning attributed to trauma
 - b. Responses to trauma
 - c. Help seeking behavior
 - d. None of the above
 - e. I am not sure
11. Which of the following trauma response(s) indicate challenges to the social contract?
- a. An adolescent who believes the world is a dangerous place
 - b. A toddler who does not trust any adults due to experience of parental physical abuse
 - c. Jane does not want to talk to her current therapist about her history of sexual abuse because her previous therapist reported it to child protective services, who placed her in foster care.
 - d. None of the above
 - e. I am not sure
12. Which of the following maybe a sign (s) of secondary traumatic stress?
- a. Increased irritability
 - b. Not being able to separate work from personal life
 - c. Difficulty making day-to-day decision
 - d. All of the above
 - e. I am not sure

APPENDIX D
ATTRIBUTIONS MEASURE

Table 2 WAQ vignettes and items

Vignettes used from the WAQ as adapted by Jacobs et al. (2015)		
Vignette 1	Your child is looking for a certain toy he wants to play with while you are busy talking on the telephone. When he can't find it, he tries to get your attention and keeps interrupting you to indicate that he wants you to help him find the toy.	
Vignette 2	You and your child are in the lounge. You are planning a family outing that day and together you are waiting for the weather forecast on the TV. Just as the weather comes on, your child begins to make a noise with a toy that he is playing with.	
Vignette 3	Your child is getting ready for school. You notice that his hair is not yet brushed. You remind him that his hair needs to be brushed before going to school but he refuses and does not cooperate.	
Questionnaire item	Anchor	
Problem	How much of a problem did you feel the behavior was?	not at all—very much
Child control	To what extent was your child's behavior caused by something within his or her control?	completely within his or her control—not at all within his or her control
Child responsibility	Is your child responsible for the way in which s/he behaved?	not at all responsible—very much responsible
Blame	Is your child to blame for what s/he did?	not at all to blame—very much to blame
Intent	Did your child behave this way on purpose?	not at all—very much
Parent control	To what extent was your child's behavior caused by something within your control?	completely within my control—not at all within my control
Parent responsibility	To what extent were you responsible for your child's behavior?	not at all responsible—very much responsible
Anger	How angry did you feel when you saw your child act this way?	not at all—extremely

Jacobs, M., Marks Woolfson, L., & Hunter, S. C. (2017). Parental Attributions of Control for Child Behaviour and Their Relation to Discipline Practices in Parents of Children with and Without Developmental Delays. *Journal of Child and Family Studies*, 26(6), 1713–1722.

APPENDIX E
SELF-CARE MEASURE

Developing a self-care plan

Here is another exercise aimed at helping you personally address and manage vicarious trauma. We encourage you to focus on enhancing some specific area(s) of self care. We don't want to promote guilt or pressure you; we just want to bring to your awareness some possible ways to better nurture yourself physically, psychological, emotionally, and spiritually.

To formulate your own personal self-care plan, please write down below one thing that you could work on or increase your awareness of in the next month. For ideas, you can refer to the Self-Care Assessment included below. If you feel really ambitious or inspired, you can pick an item from two or more areas.

Physical Self-Care: _____

Psychological Self-Care: _____

Emotional Self-Care: _____

Spiritual Self-Care: _____

ASSESSMENT WORKSHEET: SELF-CARE

The following material was adapted from:

Saakvitne, K. W., & Pearlman, L. A. (1996). *Transforming the pain: A workbook on vicarious traumatization for helping professionals who work with traumatized clients*. New York: W. W. Norton & Company, pp. 61-66, 93-95.

Rate the following areas in

frequency 5 =

Frequently

4 = Occasionally

3 = Rarely

2 = Never

1 = It never occurred to me

Physical Self-Care

_____ Eat regularly (e.g. breakfast, lunch, and dinner)

_____ Eat healthily

_____ Exercise

- _____ Get regular medical care for prevention
- _____ Get medical care when needed
- _____ Take time off when sick
- _____ Get massages
- _____ Dance, swim, walk, run, play sports, sing, or do some other physical activity that is fun
- _____ Take time to be sexual--with yourself, with a partner
- _____ Get enough sleep
- _____ Wear clothes you like
- _____ Take vacations
- _____ Take day trips or mini-vacations
- _____ Make time away from telephones
- _____ Other: _____

Psychological Self-Care

- _____ Make time for self-reflection
- _____ Have your own personal psychotherapy
- _____ Write in a journal
- _____ Read literature that is unrelated to your work
- _____ Do something at which you are not expert or in charge
- _____ Decrease stress in your life
- _____ Notice your inner experience--listen to your thoughts, judgments, beliefs, attitudes, and feelings
- _____ Let others know different aspects of you
- _____ Engage your intelligence in a new area, e.g., go to an art museum, history exhibit, sports event, auction, theater performance
- _____ Practice receiving from others
- _____ Be curious
- _____ Say no to extra responsibilities
- _____ Other: _____

Emotional Self-Care

- _____ Spend time with others whose company you enjoy
- _____ Stay in contact with important people in your life
- _____ Give yourself affirmations, praise yourself
- _____ Love yourself
- _____ Reread favorite books, re-view favorite movies
- _____ Identify comforting activities, objects, people, relationships, places and seek them out
- _____ Allow yourself to cry
- _____ Find things that make you laugh
- _____ Express your passion in social action, letters, donations, marches, protests
- _____ Play with children

_____ Other: _____

Spiritual Self-Care

- Make time for reflection
- Spend time with nature
- Find a spiritual connection or community
- Be open to inspiration
- Cherish your optimism and hope
- Be aware of nonmaterial aspects of life
- Try at times not to be in charge or the expert
- Be open to not knowing
- Identify what is meaningful to you and notice its place in your life
- Meditate
- Pray
- Sing
- Spend time with children
- Have experiences of awe
- Contribute to causes in which you believe
- Read inspirational literature (talks, music, etc.)
- Other: _____

Workplace or Professional Self-Care

- Take a break during the workday (e.g., lunch)
- Take time to chat with co-workers
- Make quiet time to complete tasks
- Identify projects or tasks that are exciting and rewarding
- Set limits with clients and colleagues
- Balance your caseload so no one day or part of a day is “too much”
- Arrange your work space so it is comfortable and comforting
- Get regular supervision or consultation
- Negotiate for your needs (benefits, pay raise)
- Have a peer support group
- Develop a non-trauma area of professional interest
- Other: _____

Balance

- Strive for balance *within* your work-life and workday
- Strive for balance *among* work, family, relationships, play and rest

Other Areas of Self-Care that are Relevant to You

- Other: _____
- Other: _____
- Other: _____

APPENDIX F
TRAINING EVALUATIONS

Please indicate your level of agreement with the statements listed below.

Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)

1. The objectives of the training were clearly defined.
2. Participation and interaction were encouraged.
3. The topics covered were relevant.
4. The content was organized and easy to follow.
5. The training experience will be useful in my desired career.
6. The trainer was knowledgeable about the training topics.
7. The training objectives were met.
8. The time allocated for the training was sufficient.
9. The training experience will be useful in my personal life.

APPENDIX G
VIGNETTES

ACEs Vignettes

Pre-school Scenario:

Ricky, a three-year-old boy, cries inconsolably when his mother drops him off at school in the morning. His teachers thought his crying would stop when he became more comfortable in the classroom; however, he continues to cry every day and does not interact with his teachers or play with his peers. Ricky also has a speech delay and gets very upset when the other students are loud or when his daily routine is interrupted. One day the teacher asked Ricky to talk about his drawing, and he said, "Daddy hurt mommy." Ricky's mother was later observed to have a black eye and bruises that were consistent with assault.

Elementary school Scenario:

John is constantly in trouble at school, and appears to have significant problems grasping fourth grade material. His mother describes the violence that is pervasive in both their home and neighborhood. She reports that John has witnessed his father repeatedly beating her, and has been a victim himself of his father's rages. During first grade he was placed in foster care. John has also seen gun violence in his neighborhood.

Middle School Scenario:

Consider Joy. Her teacher brought the sixth grader to the school nurse because she was complaining of a stomachache. The teacher was concerned about Joy's complaint and explained to the nurse that, while Joy had always been an enthusiastic and hardworking student, recently she had not been paying attention or completing her work. In the nurse's office, Joy was quiet and withdrawn, but eventually admitted that she had witnessed a girl being beaten by another student the previous day. She was sad, frightened, and afraid for her safety.

High School Scenario:

Consider Nicole. Her teacher noticed that the tenth grader, who had previously been a very outgoing and popular student, suddenly appeared quiet, withdrawn, and "spaced out" during class. When the teacher approached her after class, Nicole reluctantly admitted that she had been forced to have sex on a date the previous week. She was very embarrassed about the experience and had not told anyone because she felt guilty and was afraid of what would happen.

APPENDIX H
INSTITUTIONAL REVIEW BOARD LETTER

From: nrs54@msstate.edu
Sent Date: Wednesday, May 01, 2019 13:30:15 PM
To: ado56@msstate.edu, lic20@themsms.org, cm998@msstate.edu, hd482@msstate.edu, hld166@msstate.edu, kja3@msstate.edu, lad199@msstate.edu, rrm226@msstate.edu
Cc:
Bcc:
Subject: Approval Notice for Study # IRB-17-569, Adversity and Resilience Training

Message:

Protocol ID: IRB-17-569
Principal Investigator: Arazais Oliveros
Protocol Title: Adversity and Resilience Training
Review Type: EXEMPT
Approval Date: May 01, 2019
Expiration Date: April 30, 2024

The above referenced study has been approved. To access your approval documents, log into myProtocol and click on the protocol number to open the approved study. Your official approval letter can be found under the Event History section. For non-Exempt approved studies, all stamped documents (e.g., consent, recruitment) can be found in the Attachment section and are labeled accordingly.

If you have any questions that the HRPP can assist you in answering, please do not hesitate to contact us at irb@research.msstate.edu or 662.325.3994.