EXAMINING THE PREDICTIVE VALIDITY OF THE MALTREATMENT AND ABUSE

CHRONOLOGY OF EXPOSURE SCALE ON INTERNALIZING SYMPTOMS

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Doctor of Philosophy

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by

Elizabeth Joy Wofford

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DEDICATION

This dissertation is dedicated to my best friend and husband, Joshua Wofford. You are the best thing that has ever happened to me and God's greatest blessing to me. I also dedicate this dissertation to my mom, Pam White, for all the work she has done to get me here and her determination to support me no matter what comes. Finally, I dedicate this dissertation to my Lord and Savior, who has brought so much healing from childhood trauma and called me to continue working in the fight against it with Him.

ABSTRACT

Wofford, Elizabeth Joy, *Examining the predictive validity of the Maltreatment and Abuse Chronology of Exposure Scale on internalizing symptoms*. Doctor of Philosophy (Counselor Education), December, 2018, Sam Houston State University, Huntsville, Texas.

Although childhood maltreatment has been well researched, and there are many assessments of childhood maltreatment, they are fragmented and the Maltreatment and Abuse Chronology of Exposure Scale (MACE) was developed to address this problem, as it captures 10 types of childhood maltreatment along with ages of exposure. Childhood maltreatment, specifically psychological maltreatment, has also been connected to internalizing symptoms of depression and anxiety. This study was developed to examine the predictive validity of the MACE by administering the MACE and a measure of internalizing symptoms, the Depression and Anxiety Stress Scale-21 (DASS-21), to participants and examining the relationships between the scores on the MACE and the DASS-21. Canonical correlation was used to examine the relationships between the MACE subscales and the DASS-21 categories of Depression, Anxiety, and Stress. Scores on the MACE, especially in categories of emotional abuse and neglect, were significantly related to scores of Stress, Anxiety, and Depression. Additionally, responses to the MACE were broken into three categories of early childhood (1-5), middle childhood (6-12), and late childhood (13-18), to examine which categories of abuse would be the most strongly related to internalizing symptoms. The analyses for middle and late childhood were significant and followed the same pattern, with the scales for emotional abuse and neglect being the strongest related to the symptoms of Stress, Anxiety, and Depression. These results provide support for the accuracy of the MACE in capturing many types of childhood maltreatment and can effectively predict scores of internalizing symptoms, and

provide support for the use of the MACE in both research and clinical counseling

practice.

KEY WORDS: Maltreatment and Abuse Chronology of Exposure Scale (MACE), Depression Anxiety and Stress Scale-21, Childhood Maltreatment, Emotional and Psychological Abuse, Internalizing Symptoms

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CHAPTER I

INTRODUCTION

Child abuse has received a great deal of attention and research, particularly in

recent decades (Brassard, Hart, & Hardy, 1993; Feiring & Zielinski, 2011). As part of

the research effort, the Journal of Child Maltreatment was established in 1996 and is now

highly ranked among journals of family studies and social work (Feiring & Zielinski,

2011). In recent studies of child abuse, researchers have focused on various aspects of

maltreatment, including definitions, ways to measure maltreatment, and various

consequences of maltreatment (Feiring & Zielinski, 2011; Marwaha et al., 2016). Many

researchers have concentrated on individual types of childhood maltreatment, including

sexual, physical, and emotional/psychological, as well as various combinations of types

with other variables (Dunn, McLaughlin, Slopen, Rosand, & Smoller, 2013; Feiring &

Zielinski, 2011; Günther, Dannlowski, Kersting, & Suslow, 2015).

Experiences of child maltreatment have long been associated with an assortment

of mental and physical health conditions in adulthood, including anxiety and depressive

disorders, suicidal ideation, and even personality disorders (Khan et al., 2015; Marwaha

et al., 2015; Pietrek, Elbert, Weierstall, Muller, & Rockstroh, 2013). Teicher and Samson

(2016) report that "childhood maltreatment is the most important preventable cause of

psychopathology accounting for about 45% of the population attributable risk for

childhood onset psychiatric disorders" (p. 241). Research on the multifaceted topic of

child maltreatment is currently being conducted in many professional disciplines

including medical, mental health, and legal arenas. As the body of research grows,

assessment and treatment measures, as well as policies and prevention strategies, are being continuously refined and improved.

Neurobiology and Childhood Maltreatment

With recent developments in the field of neurobiology, we know more now than we ever have before about the timing and structure of human brain development (Stiles & Jernigan, 2010). In addition to learning how the brain is supposed to develop under ideal conditions, researchers have explored different ways in which brain development can go wrong, as well as the deleterious outcomes of even the smallest interruptions in brain development (Andersen et al., 2008; Stiles & Jernigan, 2010). Brain development spans many years, beginning in the third week of fetal development and continues into young adulthood, but the "brain increases in size by four-fold during the preschool period, reaching approximately 90% of adult volume by age 6" (Stiles & Jernigan, 2010, p. 328). With such a large percentage of brain development occurring in the early years of life, researchers began to wonder if certain experiences at certain times in early childhood had any specific effects on brain development. The creation of new technology has allowed researchers to better study the brain and its various components, and researchers have found that brain development can be significantly affected by environmental circumstances in a child's formative years, which can also lead to a vast array of outcomes in adulthood (Agorastos et al., 2014; McCrory, De Brito, & Viding, 2012; Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014; Pietrek et al., 2013).

As knowledge of brain development and the effects on adult emotional experience and regulation has increased, researchers have worked tirelessly to understand the mechanisms by which events during significant developmental periods are directly

connected to changes in brain structure and development, as well as their eventual effect on a wide range of issues in adulthood. Researchers have identified sensitive periods of development for various brain regions, meaning that different "brain regions have unique windows of vulnerability to the effects of traumatic stress" (Andersen et al., 2008, p. 292; Church 2014). For example, the hippocampus, which is involved in memory and anticipating threats and pain, has been found to be most affected by abuse between the ages of three and five. Additionally, the corpus callosum, which is responsible for the exchange of information between the left and right hemispheres of the brain, is most vulnerable between the ages of nine and ten, and the prefrontal cortex, which is responsible for empathy, complex reasoning and decision making, along with impulse control, is most sensitive to abuse that occurs between the ages of 14 and 16 (Church, 2014).

Even though brain development is affected by the complex interaction of both genes and environmental factors, child abuse has been identified as a major environmental "risk factor in the development of psychopathology and is also associated with a host of neuropsychological and neurocognitive consequences" (Andersen et al., 2008, p. 292). As more is learned about brain structure and function, it is important to understand the timing of when child abuse has occurred so as to better understand the myriad of consequences that may develop as a result and to better target prevention and treatment interventions.

While some assessments of child maltreatment have started gathering data about when different types of abuse or neglect may have occurred, the Maltreatment and Abuse Chronology of Exposure Scale (MACE) (Teicher & Parigger, 2015) is one of the first

assessments to gather this type of data for a comprehensive range of maltreatment types, along with information about the developmental timing and frequency of occurrence of each type. The current study was designed to use this data from the MACE to examine its ability to predict an individual's chance of experiencing internalizing symptoms, which are among the most common consequences of childhood abuse and neglect.

Internalizing Symptoms and Childhood Maltreatment

Since the 1980's, a number of studies have focused largely on sexual and physical abuse because they are more easily defined and operationalized than emotional or psychological abuse or neglect (Teicher, Samson, Polcari, McGreenery, 2006). However, Harvey, Dorahy, Vertue, and Duthie (2012) suggested that emotional or psychological abuse is the "core of all forms" of childhood abuse and may be "among the most pervasive and destructive forms of childhood maltreatment" (p. 238). Due to differences in definitions and assessment methods, true incidence rates of psychological maltreatment are unknown. However, in a review of current literature on psychological maltreatment, Baker and Maiorino (2010) found that "between 15% and one third of a sample of adults will probably report childhood experience of psychological maltreatment" (p. 740). While sexual and physical abuse often occur along with psychological abuse, the reverse is not always true; psychological abuse often occurs in the absence of other types of maltreatment and psychological abuse has been linked to numerous adverse outcomes in childhood and in later years, including anxiety, depression, and suicidal ideation and attempts (Harvey et al., 2012; Marshall, 2012; Paul & Eckenrode, 2015; Spinazzola et al., 2014).

All forms of abuse and neglect have been associated with greater occurrences of internalizing symptoms, such as anxiety and depression (Khan et al., 2015; Sachs-Ericsson et al., 2010). For instance, abused and neglected adolescents have been found to experience higher rates of depressive symptoms and suicidal behaviors than their peers who experienced no maltreatment (Bruffaerts et al., 2010; Green & Myrick, 2014). Furthermore, in a survey of data from a national longitudinal study of adolescent health, researchers found that individuals who experienced maltreatment before age five displayed higher levels of internalizing symptoms, specifically depression and suicidal ideation (Dunn et al., 2013). In these and numerous other studies researchers have supported the idea that the developmental timing of abuse or neglect can have specific and far reaching consequences for adult physical and mental health (Dunn et al., 2013; Ogle, Rubin, & Seigler, 2013).

Internalizing symptoms are connected with a variety of outcomes on adult mental health and are often linked with self-criticism, emotional inhibition, and negative cognitive styles (Wright, Crawford, & Del Castillo, 2009). In contrast to externalizing behaviors, such as aggressive behavior, internalizing symptoms are more difficult to detect and may go unnoticed for longer periods of time in both children and adults. Even when internalizing behaviors are noticed, it is often difficult to connect them directly to their possible origin of childhood maltreatment in order to help alleviate distressing outcomes that individuals may experience later in life. In clinical treatment, it is important to recognize internalizing symptoms and their connections to childhood maltreatment in order to help individuals begin addressing their negative perceptions and decrease their experiences of depression and anxiety symptoms. If the MACE is an

accurate, valid, and reliable assessment that is able to capture the types of maltreatment that often lead to internalizing symptoms, and if it is found to have strong predictive validity for internalizing symptoms, then it will be a great asset in both clinical treatment and research to aid clinicians in recognizing childhood maltreatment in connection with internalizing symptoms. This study hopes to determine if the MACE has predictive validity on the experience of internalizing symptoms of depression and anxiety.

Statement of the Problem

Due to the wide range of child maltreatment and its diverse consequences in adulthood, it is important to use effective assessments to more quickly recognize maltreatment and its effects for the purpose of improving clinical and research outcomes. Although many retrospective assessments of child maltreatment exist, they are somewhat fragmented and each one focuses on certain pieces of the problem (Baker & Maiorino, 2010; Tonmyr, Draca, Crain, & MacMillan, 2011). However, no one single instrument captures all of the types of maltreatment (physical, sexual, emotional abuse and neglect) and environmental factors, along with the timing of the occurrence and frequency of abuse.

The Maltreatment and Abuse Chronology of Exposure scale (MACE) (Teicher & Parigger, 2015) is a promising new instrument that attempts to fill this gap in assessments. Since its creation in 2015, the MACE has been used in some preliminary studies examining the timing of child maltreatment on brain development and genetic development and expression (Groger et al., 2016; Hecker, Radtke, Hermenau, Papassotiropoulous, & Elbert, 2016; Teicher & Samson, 2016) and its predictive validity for some specific mental health diagnoses (Jaye Capretto, 2017; Khan et al., 2015;

Schalinski & Teicher, 2015; Schalinski et al., 2016), but there are not yet any studies examining its predictive ability on internalizing symptoms that may not meet diagnostic criteria, but these symptoms are often sources of distress for clients in counseling. This study aims to examine the MACE's predictive ability on internalizing symptoms that are often treated in counseling and to add to the literature relating to its validity, credibility for use in clinical practice, and utility in research.

Purpose of the Study

While instances of physical and sexual abuse can be captured with specific and detailed questions, previous measurements have not been able to capture psychological abuse as thoroughly as other types of maltreatment, mostly due to disjointed definitions of psychological maltreatment. The creators of the Maltreatment and Abuse Chronology of Exposure Scale (MACE) (Teicher & Parigger, 2015) have designed the MACE to capture occurrences of psychological abuse and environmental factors connected with internalizing symptoms in adulthood, as well as physical abuse, sexual abuse, and neglect, along with critical information about the age of the child at the time the maltreatment occurred. Seven of the ten maltreatment categories covered in the MACE include operational definitions for many types of psychological maltreatment, including *parental verbal abuse, parental non-verbal emotional abuse, witnessing violence to family or peers*, and *experiencing bullying and ostracism from peers*. With such a comprehensive approach, it follows logically that the MACE should have strong predictive validity on common outcomes of childhood maltreatment, including internalizing symptoms. The purpose of this study is to examine the predictive validity of the Maltreatment and Abuse Chronology of Exposure (MACE) scale on the experience

of internalizing symptoms of depression and anxiety, as measured by the Depression Anxiety Stress Scale 21 (DASS-21) (Lovibond & Lovibond, 1995).

Significance of the Study

As research continues to advance in its understanding of trauma, especially childhood trauma, it is important that good assessments are available for identifying and treating the variety of issues clients may experience in adulthood. Both externalizing and internalizing symptoms may be a result of childhood maltreatment (Harvey et al., 2012; Marshall, 2012; Paul & Eckenrode, 2015; Spinazzola et al., 2014), but in therapy internalizing symptoms are even more difficult to connect to their possible source of childhood maltreatment. Most counselors ask about childhood abuse and neglect upon intake, however, many clients may not recognize the experiences in their childhood as maltreatment and will often deny experiencing any childhood abuse or neglect. This can result in weeks or months of treatment addressing depression and anxiety without fully understanding that their roots may lie in distorted beliefs or perceptions that were shaped by early childhood maltreatment.

The MACE can be used in therapy to provide specific examples of maltreatment and allow clients to recognize that events from their childhood may be connected to symptoms of anxiety or depression they may be experiencing as an adult. In addition to clinical uses, the MACE has great potential to further the field of research by capturing ten types of maltreatment along with the age and frequency of exposure, thereby adding to our understanding of the relationship between the timing of childhood maltreatment and adult outcomes. This study aims to add to the research that supports the MACE as an

effective predictor of internalizing symptoms and thereby add to the literature by supporting its use in both research and clinical practice.

<div align="center">**Definition of Terms**</div>

Maltreatment and Abuse Chronology of Exposure Scale (MACE)

For the purposes of this study, terms will be defined based on the respective assessments from which they are drawn. Definitions of the 10 maltreatment categories are based on the specific questions from the MACE (Teicher & Parigger, 2015) that make up each category. Many of the categories are self-explanatory by title but a summary of each category is presented below.

Parental verbal abuse. Parental verbal abuse was measured with questions about specific behaviors and their outcomes such as "swore at you, called you names, insulted you", "threatened to abandon you", "said hurtful things that made you feel humiliated" or "acted in a way that made you feel afraid that you might be physically hurt more than a few times a year" (Teicher & Parigger, 2015, p. 13).

Parental non-verbal emotional abuse. Questions for parental non-verbal emotional abuse included things like the parent being "very difficult to please", having "no time or interest" in the respondent, feeling that they "had to shoulder adult responsibilities", or "felt family financial pressure". Two questions focus specifically on behavioral actions, such as locking the child in a closet, basement, or garage, and keeping important secrets or facts from the child (Teicher & Parigger, 2015, p. 13).

Parental physical maltreatment. Parental physical maltreatment was measured with questions about specific behaviors that are typically considered to constitute physical abuse, including "intentionally pushed, pinched, slapped, and kicked you", "hit

you so hard it left marks for more than a few minutes", or needed medical attention (Teicher & Parigger, 2015, p. 14). A few questions also focused specifically on spanking behaviors, inquiring about objects used and location of spanking.

   Sexual abuse – familial or extra-familial. Sexual abuse was defined by specific questions about being touched or fondled or being forced to touch or fondle someone else in a sexual way or "engage in sexual activity", which included oral, anal, or vaginal intercourse. Sexual abuse also included "inappropriate sexual comments" (Teicher & Parigger, 2015 p.16).

   Witnessing interparental violence. Witnessing interparental was defined as witnessing any violence between any adults or caregivers in the household, including stepmother/stepfather, grandmother/grandfather, mother (or surrogates), or father (or surrogates). Questions include specific behaviors such as "push, slap, or throw something", and being "hit so hard that it left marks for more than a few minutes" or "needed medical attention" (Teicher & Parigger, 2015, p. 17).

   Witnessing violence to siblings. Witnessing violence to siblings was defined as witnessing any physical or sexual abuse against sibling or stepsibling from parents or adult caregivers living in the home. This category included questions about being "hit so hard that it left marks" or "needed medical attention", or witnessing a parent making sexual comments to a sibling, or sexual touching or fondling of a sibling.   .

   Peer verbal abuse and ostracism. Peer verbal abuse and ostracism was measured with questions about being sworn at, called names, or humiliated by hurtful words "more than a few times per year". It also included questions about peers saying "things behind your back" or "excluding you from activities or groups". Threatening

behavior was also captured by asking if peers "acted in a way that made you afraid you might be hurt" (Teicher & Parigger, 2015, p. 14).

Peer physical bullying. Peer physical bullying was measured with questions about specific behaviors, such as "threatened you in order to take money or possessions", "forced you to do things you did not want to do", "intentionally shoved, punched, or kicked you", including being hit so hard that it left marks for more than a few minutes or needed medical attention (Teicher & Parigger, 2015 p. 15).

Emotional neglect. Emotional neglect was generally defined as the experience of a caregiver being present in the household but emotionally unavailable for "a variety of reasons like drugs, alcohol, workaholic, having an affair, [or] heedlessly pursuing their own goals" (Teicher & Parigger, 2015, p. 11).

Physical neglect. Physical neglect was defined by questions about specific circumstances as well as an overall perception of the child's ability to expect that their physical needs would be met. Examples of specific details included not having enough to eat or having to wear dirty clothes, and the overall perceptions were reverse coded with questions about whether or not "one or more family members were there to take care of and protect you" or "take you to the doctor or ER if needed" (Teicher & Parigger, 2015, p. 15).

Depression Anxiety Stress Scale-21.. The DASS -21 measures three aspects of internalizing symptoms, depression, anxiety, and general stress. For the purposes of this study these terms are defined according to the definition used in the DASS-21.

Depression. Depression is defined as the loss of self-esteem and motivation, and depressed mood. The depression scale assesses "dysphoria, hopelessness, devaluation of

life, self-depreciation, lack of interest/involvement, anhedonia, and inertia" (Lovibond & Lovibond, 1995, p. 1).

Anxiety. Anxiety is defined as fear and anticipation of negative events. The anxiety scale assesses "autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect" (Lovibond & Lovibond, 1995 p. 1).

Stress. As it is used in the DASS-21, the category of stress includes other types of internalizing symptoms that can cause distress but are not clearly identified as anxiety or depression. The stress subscale assesses for levels of "chronic, non-specific arousal, difficulty relaxing, nervous arousal, and being easily upset or agitated, irritable, over-reactive and impatient" (Lovibond & Lovibond, 1995, p. 1).

Theoretical Framework

From the time that the diagnosis of Post-Traumatic Stress Disorder (PTSD) was first added to the *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition* in 1980, the mental health field has worked to understand and treat issues rooted in the experience of trauma (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). PTSD was originally thought to be an experience limited to soldiers or those who had experienced extreme traumatic events. For many years, symptoms that did not fall under the diagnosis of PTSD were listed as "comorbid conditions" and not often considered in light of the experience of trauma (van der Kolk et al., 2005). This included many symptoms known to be associated with childhood trauma, female victims of domestic violence, and concentration camp survivors (van der Kolk et al., 2005). As research continued, experts began to identify that many of the damaging consequences of some types of trauma were linked to the fact that trauma includes "assaults on victims'

sense of safety, trust, and self-worth…and their loss of a coherent sense of self" (van der Kolk et al., 2005, p. 389), and this trauma was often found to occur in relationships, often long-term relationships, rather than single incidents such as assault from a stranger.

Complex Trauma

Although the addition of a diagnosis specifically rooted in trauma was revolutionary to the field of mental health, it became clear that the diagnostic criteria of PTSD was no longer sufficient to capture elements of what has become known as *complex trauma*, or the "exposure to multiple and chronic interpersonal trauma in childhood, typically occurring within the caregiving system…and is associated with a complex range of symptoms and impairments across several areas of development" (Kisiel et al., 2014 p. 1). This concept of complex trauma is especially important when considering the effects of childhood maltreatment, and many assessments, including the one used in this study (MACE) were developed in order to capture a more comprehensive experience of chronic interpersonal trauma.

Many researchers have demonstrated that the experience of complex, interpersonal trauma is connected to a "greater number and severity of functional and mental health problems" (Kisiel et al., 2014, p. 1). Furthermore, researchers have found that the experience of multiple types of interpersonal trauma, either in childhood or adulthood, often results in greater symptom complexity than what is covered by the diagnostic criteria of PTSD (Ford, Elhai, Connor, & Frueh, 2010; Greeson et al. 2011; Kisiel et al., 2014). Complex trauma has been linked to difficulties with "affect and impulse regulation, self-perception, somatization, attachment and interpersonal relations, attention, and challenges with systems of meaning" (Kisiel et al. 2014, p. 1).

Additionally, studies of developmental neuroimaging have confirmed that there are significant changes in the neurological structure and function of the brain that are linked to the behavioral and cognitive effects of childhood trauma (Delima & Vimpani, 2011; Kisiel et al. 2014).

Although the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5) (American Psychiatric Association, 2013) published in 2013 did not include the proposed diagnosis of Developmental Trauma Disorder (van der Kolk, 2005), the diagnosis of Complex Trauma has been proposed for the *International Classification of Disorders,* 11th revision (ICD-11) published by the World Health Organization (Hyland, Shevlin, Elklit, Murphy, Vallières, Garvert, & Cloitre, 2016). While the DSM-5 grouped these additional trauma symptoms under the diagnosis of PTSD, the ICD-11 proposes two distinct but related disorders: post-traumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD) (Hyland et al., 2016).

Complex Trauma is based on the principle that "multiple exposures to interpersonal trauma, such as abandonment, betrayal, physical or sexual assaults or witnessing domestic violence have consistent and predictable consequences that affect many areas of functioning" (van der Kolk, 2005, p. 10). In the ICD-11, PTSD is comprised of six symptoms organized into three groups (reexperiencing the trauma, avoidance of trauma reminders, and persistent sense of threat) and represents a "fear response, with its focus on reexperiencing of the traumatic memory and consequent avoidance and hypervigilance" (Hyland et al., 2016, p. 2). The diagnosis of CPTSD includes these three categories of symptoms but also adds six symptoms that are related to a disturbance in self-organization, "which may result from sustained, repeated, and

multiple forms of traumatic exposures" (Hyland et al., 2016, p. 2). These symptoms are divided into three categories: affective dysregulation, negative self-concept, and disturbed relationships (Hyland et al., 2016). To receive a diagnosis of CPTSD, an individual must have at least one symptom from each category for PTSD as well as at least one symptom from each of the three additional categories for CPTSD.

Van der Kolk (2005) argued that PTSD did not sufficiently account for the following characteristics often seen in those who have experienced complex trauma:

Complex disruptions of affect regulation; disturbed attachment patterns; rapid behavioral regressions and shifts in emotional states; loss of autonomous strivings; aggressive behavior against self and others; failure to achieve developmental competencies; loss of bodily regulation in the areas of sleep, food and self-care; altered schemas of the world; anticipatory behavior and traumatic expectations; multiple somatic problems, from gastrointestinal distress to headaches; apparent lack of awareness of danger and resulting self-endangering behaviors; self-hatred and self- blame and the chronic feelings of ineffectiveness. (p. 9)

Hyland et al. (2016) note that "the ICD-11 specifies that the nature of the trauma history does not determine which diagnosis is appropriate; however, it does suggest that exposure to repeated traumas, especially those that begin in early development, are associated with greater risk" for CPTSD (p. 2). The emphasis on the likelihood of early childhood trauma being connected to more complex and varied symptoms of post-traumatic stress is consistent with current research in neurobiology that connects the experience of trauma during sensitive periods of development to different outcomes in

adulthood, and it is this focus that makes complex trauma a valuable theoretical framework for this study.

Complex Trauma and Internalizing Symptoms

Along with other trauma researchers, Van der Kolk (2009) proposed that children's inability to regulate themselves is largely connected to the fact that their brains seek consistency and predictability in order to develop "internal working models" as a result of attachment to caregivers, from which they interact with the world, and when they experience complex, interpersonal trauma, this pattern is disrupted. The ICD-11 considers a difficulty in affect regulation to be among the core defining features of CPTSD (Hyland et al., 2016). The developing brain is built on repetitive, predictable experiences that allow individuals to "develop a good sense of causality and … [learn] to categorize experiences" (van der Kolk, 2005, p. 6).

In order to cope with stress, children need to learn regulation strategies from their primary caretakers. However, when the primary caretakers are unavailable to rescue the child from a distressing situation, or perhaps are even the cause of the stress, children are not able to develop effective coping strategies or critical interpersonal skills (van der Kolk, 2005). This often results in children being unable to clearly determine cause and effect of their behaviors, leading to lack of personal responsibility or understanding the consequences of their actions.

Although it has been demonstrated that complex trauma can lead to a vast constellation of symptoms, the elements of emotional and behavioral dysregulation are considered to be important factors in the development of internalizing symptoms (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008; Mendle, Leve, Van Ryzin, &

Natsuaki, 2013; Pietrek et al., 2013). However, internalizing symptoms are often

difficult to recognize until they become extreme or cause significant impairment.

Additionally, these symptoms are not often immediately connected to a client's history of

childhood maltreatment in therapy, especially if the therapist focuses only on the problem

as it manifests in the present, without considering the possible influence of childhood

factors on adult functioning (Cloitre, Stolbach, Herman, van der Kolk, Pynoos, Wang, &

Petkova, 2009; Harvey, Dorahy, Vertue, & Duthie, 2012; Springer, Sheridan, Kuo, &

Carnes, 2007).

    While information about the types of maltreatment clients may have experienced

is useful in therapy, it is just as important to know when clients experienced them, as the

combination of types of maltreatment and the developmental timing of the experiences is

very often related to issues of emotional and behavioral regulation. Issues in emotional

and behavioral regulation are common in counseling treatment of various internalizing

symptoms, and it is important to connect these symptoms to childhood trauma in order to

address these underlying issues of regulation and make therapy more effective (Herringa

et al., 2013; Mendle et al., 2013; Pietrek et al., 2013).

    The MACE was developed based on many previous assessments of childhood

maltreatment that attempted to capture pieces of the symptoms of complex trauma, but

the MACE covers more types of maltreatment than any assessment before it. In light of

the fact that complex trauma accounts for such a wide array of symptoms under the same

diagnostic umbrella, it was chosen as the theoretical framework for this study to examine

the predictive validity of the MACE on internalizing symptoms in adults who have

experienced childhood maltreatment.

Research Questions

1)   What is the relationship of the individual categories of maltreatment measured by

the MACE (parental verbal abuse; parental non-verbal abuse; parental physical

maltreatment; sexual abuse (familial or extra-familial); witnessing interparental

violence; witnessing violence to siblings; peer verbal abuse and ostracism; peer

physical bullying; emotional neglect; and physical neglect) to severity of

internalizing symptoms as measured by a total score for the DASS-21?

2)   To what degree does the total score for each participant on the MACE predict their

experience of internalizing symptoms as measured by the DASS-21?

3)   To what degree does age of exposure predict participants' experience of

internalizing symptoms as measured by the DASS-21?

Limitations

The following limitations exist in this study: Data were collected through a

website and no researcher was present to answer any clarifying questions for participants,

which could have affected the results. Additionally, only those willing to participate

completed the assessments, and the study was limited to adults age 18 and over. I was

also unable to control for gender, socioeconomic status (SES), and race.

Delimitations

The following delimitations were used in this study. Participants were only

eligible to complete the assessments if they were 18 or older, had access to a computer,

and access to the internet. The study used only self-report measures. Additionally, only

retrospective measures of childhood maltreatment were used, since participants must be

adults. The use of retrospective measures has been largely supported in the literature

(Baker, 2009) and has proven useful for studies of internalizing symptoms (Coates & Messman-Moore, 2014). However, it is important to remember that the results may be affected by participants' subjective perceptions (Nash, Hayes-Skelton, & DiLillo, 2014).

Assumptions

The assumptions accepted for this study are as follows:

1. Participants who completed the MACE and DASS-21 assessment via the website consented to participate in the research.

2. Participants were honest in their responses.

3. Self-report, retrospective assessments are appropriate for capturing participants' experiences and perception of child abuse and may yield information not captured by other methods (Cammack & Hogue, 2017).

Retrospective assessments have long been used in the field of psychological research, especially in the area of childhood maltreatment, and many researchers have examined their validity and found them to be suitable for this type of research (Fisher et al., 2011; Kendall-Tackett & Becker-Blease, 2004; Pinto, Correia, & Maia, 2014). Specifically, Kendall-Tackett and Becker-Blease (2004) found that retrospective measures are essential to the research of childhood maltreatment, in contrast to prospective designs. They argue that because prospective designs rely on data from cases of maltreatment reported to law enforcement and child protective agencies, they may "miss a substantial number of cases" and that "unreported cases of abuse may be more severe" than those that are reported (Kendall-Tackett & Becker-Blease, 2004, p. 724).

Organization of the Study

This dissertation is organized into five chapters. Chapter I contains an introduction and background of the study, statement of the problem, purpose of the study, significance of the study, definition of terms, theoretical framework, research questions, limitations, delimitations, and assumptions. Chapter II presents a review of the literature applicable to childhood maltreatment types, prevalence rates and effects of childhood maltreatment, as well as issues with current measurements of childhood maltreatment along with a review of some relevant assessments. Chapter III provides a description of the research design, participants, and instruments used in this study, in addition to a detailed description of the process of data collection and analysis. Chapter IV covers the analysis of the data and results of each research question. Finally, Chapter V presents the discussion, implications, and recommendations for future research.

CHAPTER II

LITERATURE REVIEW

All forms of childhood abuse, physical, sexual, and psychological, have lasting effects on survivors long into adulthood. In recent years, Post-Traumatic Stress Disorder (PTSD), has become a popular focus of study in the mental health field, and has led to many benefits for clients in terms of treatment, relief from symptoms, and healing from the scars of their childhood experiences (Shi, 2013). As research continues to advance in the areas of trauma and neurobiology, the data are beginning to show that all forms of childhood trauma can significantly impact and alter brain structure and development, which can also contribute to the emotional and psychological difficulties stemming from childhood abuse (Dunn, McLaughlin, Slopen, Rosand, & Smoller, 2013; Günther, Dannlowski, Kersting, & Suslow, 2015; Teicher et al., 2006; van der Kolk, 2007).

Recent statistics from the U.S. Department of Health & Human Services on child maltreatment (2017) indicate that approximately 75.3% of childhood abuse victims were neglected, 17.2 % were physically abused, and 8.4 % were sexually abused. In 2015, a nationwide estimate of children deaths from abuse and neglect was approximately 1,670, which represented a rate of 2.25 per 100,000 children. Data collected in 2015 also showed 481,925 new cases of child maltreatment were reported in 2015 alone, and that approximately 683,487 children, or nine percent out of every 1000 children, were reported to have experienced child maltreatment (U.S. Department of Health & Human Services [USDHHS], 2017). In recent years, researchers have discovered a significant relationship between all forms of childhood maltreatment and emotional and behavioral

issues in adulthood. These results have led to significant improvements in further research and clinical treatment of the numerous consequences of childhood abuse.

Every single number in the above-quoted statistics about childhood abuse represents the life of an individual child. The psychological effects they are likely to experience well into adulthood are most certainly responsible for the dramatic growth of research and professional literature in the assessment, prevention, and treatment of childhood abuse and neglect. Even still, room exists for continued improvements in the measurement and assessment methods regarding the study of child abuse and neglect, as well as better understanding of situational factors connected to negative outcomes of childhood maltreatment. The current study aims to investigate a new and promising method of measurement, the Maltreatment and Abuse Chronology of Exposure scale (MACE) (Tiecher & Parigger, 2015). This chapter includes a brief summary of the types and outcomes of child abuse and neglect, a summary of current findings in the field of neurobiology and childhood trauma, an explanation of sensitive periods of brain development, a description of complex trauma and internalizing symptoms, and a discussion of certain issues concerning the definition and assessment of different forms of maltreatment, along with a brief overview of some popular retrospective measures of childhood maltreatment.

Childhood Maltreatment

Sexual Abuse

According to the National Child Traumatic Stress Network Child Sexual Abuse Committee [NCTSN] (2009a), sexual abuse is generally defined as "any interaction between a child and an adult (or another child) in which the child is used for the sexual

stimulation of the perpetrator or an observer" although definitions may vary from state to state (NCTSN, 2009a, p.1). Recent statistics indicate that one out of every four girls, and one out of every six boys will experience some form of sexual abuse before they reach the age of 18 (NCTSN, 2009a). In addition, a national survey of child maltreatment conducted in 2015 found that 8.4 % of children in the United States were sexually abused (USDHHS, 2017). According to the Fourth National Incidence Study of Child Abuse and Neglect, (Sedlak et al., 2010), 37% of the sexual abuse perpetrators were biological parents, 23% were nonbiological parents or partners, and 40% were "other" relationships to the child. While it is clear that family members, or primary caregivers, are not the only perpetrators of child sexual abuse, they do make up a substantial percentage of offenders. Even when caregivers may not be the perpetrators, their care for the children, or lack thereof, is often responsible for creating an environment that leads to child sexual abuse.

Isolating the effects of each type of maltreatment is almost impossible due to the fact that they often co-occur. However, numerous studies have found that sexual abuse is directly connected with serious emotional and behavioral problems in adulthood. Some of the negative effects of sexual abuse include increased risk for obesity (Hemmingsson, Johansson, & Reynisdottir, 2014), sexual dysfunction (Collins, 2016), depression and anxiety (Meston, Lorenz, & Stephenson, 2013), suicidal behavior (Devries et al., 2014), and PTSD (Devries et al., 2014). In addition, these numbers may represent a much lower incidence of abuse than actually occurs, as the literature strongly suggests that children often do not report sexual abuse for a variety of reasons, including threat of harm, fear of being removed from their home, fear of not being believed, and shame or guilt (NCTSN, 2009a).The risk of well-documented consequences combined with the high probability of

underreporting, creates a serious need for effective tools of assessment for detecting a history of childhood sexual abuse with the hope of improving treatment goals and outcomes for adult survivors of childhood abuse.

Physical Abuse

Definitions of physical abuse may vary from state to state, however, according to the National Child Traumatic Stress Network (NCTSN, 2009b), all state definitions do include the definition of a parent or caregiver committing "an act that results in physical injury to a child or adolescent, such as red marks, cuts, welts, bruises, muscle sprains, or broken bones, even if the injury was unintentional" (NCTSN, 2009b, p.1). In the most current reports on their website, the National Child Traumatic Stress Network (2009b) reported approximately 149,000 cases of child physical abuse in the United States of America for the year 2007. Children between the ages of four to seven, and 12 and 15 are at the greatest risk of being physically abused (NCTSN, 2009b). In the most recent survey of Child Maltreatment, the U.S. Department of Health and Human Services reported that 17.2 % of children in the United States were physically abused (USDHHS, 2017). According to the Fourth National Incidence Study of Child Abuse and Neglect, (Sedlak et al., 2010), 72% of perpetrators of physical abuse were biological parents, 19% were nonbiological parents or partners, while 9% were "other" relationships to the child.

Beyond the obvious physical injuries often seen in childhood physical abuse, survivors often experience long term physical and mental health issues as a result of the physical abuse. These effects include an increased likelihood of physical illness, anxiety, anger, PTSD, and depression for many years after the abuse occurred (Lindert et al., 2014), as well as the development of aggressive and violent behavior, an increased risk of

criminal behavior, substance abuse, self-injurious and suicidal behavior, along with other psychiatric disorders (Banducci, Hoffman, Lejuez, & Koenen, 2014; Hartford, Yi, & Grant, 2014; Teicher & Samson, 2016). Although it is often believed that child abuse of all forms is underreported regarding the actual number of occurrences (Sedlak et al. 2010), these numbers and their consequences are significant, and the severe effects of childhood physical abuse are important to note, both for research and clinical purposes.

Neglect

Neglect is another area of child maltreatment often overlooked in the assessment of child maltreatment however, some tools, such as the Childhood Trauma Questionnaire, contain emotional neglect subscales (Baker & Festinger, 2011). According to DePanfilis (2006), in the most recent installment of the Child Abuse and Neglect User Manual Series published by the U.S. Department of Health and Human Services, "in 2004, approximately 7.4 children out of every 1,000 in the general population were reported as being neglected" (p. 14). Defining neglect is a complex issue but the formal definition includes the following categories: physical neglect, medical neglect, inadequate supervision, environmental neglect, educational neglect, emotional neglect, as well as exposure to drugs (DePanfilis, 2006).

According to recent statistics from the U.S. Department of Health & Human Services on child maltreatment, approximately 75.3% of child victims were neglected (USDHHS, 2017). Researchers argue that less than one third of child neglect cases are reported to authorities but of those that are reported, 92% were perpetrated by a biological parent, while the remaining 8% were perpetrated by a nonbiological parent or partner (Sedlak et al., 2010). With such a broad definition, it is understandable that the

rates of occurrence for neglect would be higher than those of sexual and physical abuse,

but because the effects of neglect are so many and varied, they are therefore worthy of

attention from mental health professionals. Effects of child neglect include significant

effects on mental and physical health as well as physical, intellectual, cognitive,

emotional, and psychological development (DePanfilis, 2006). Furthermore, researchers

have found that due to their specific developmental needs, younger children are most

sensitive to the effects of neglect and it is during these early years that many types of

neglect often occur (DePanfilis, 2006; USDHHS, 2017). With such significant effects on

child development and adult outcomes, it is important to develop better assessment tools

that will help account for the varied elements of child neglect.

Psychological Abuse

Child neglect, sexual abuse, and physical trauma have all received a great deal of

attention and research in recent years, and yet, in spite of significant progress that has

been made in terms of diagnoses and treatment, psychological abuse remains even more

difficult to address. Numerous studies have attempted to define and measure

psychological maltreatment (Baker, 2009; Brassard, Hart & Hardy, 1993), as well as

examine the predictive ability of psychological maltreatment in terms of a variety of

psychological difficulties later in life (Spinazzola et al., 2014; Teicher et al., 2006;

Tonmyr, Draca, Crain, & MacMillan, 2011). While progress has been made towards this

end, more work is needed in order to provide a coherent approach to recognizing,

diagnosing, and treating current cases and ameliorating the long-term effects of

psychological maltreatment.

Fragmented prevalence rates. Prevalence rates of psychological maltreatment are difficult to find due to the fragmented research based on a variety of different definitions and assessments. However, emotional abuse is not an individual category that is reported. In a global meta-analysis of studies of all types of childhood abuse, Stoltenborgh, Bakermans-Kraneburg, Alink, and van IJzendoorn (2012) found a large gap between the prevalence rates reported in self-report measures and studies using other methods of measurement. Self-report studies revealed a universal prevalence rate of 36.3% for emotional abuse and 18.4% for emotional neglect (Stoltenborgh et al., 2011). Longitudinal studies indicate that only a fraction of psychological abuse cases are reported to authorities, indicating that self-report measures may be closer to true prevalence rates (Stoltenborgh et al., 2011).

Most information about prevalence rates of psychological maltreatment come from studies focused on other diagnosable disorders instead of surveys specifically of psychological maltreatment (Shi, 2013). Additionally, types of child abuse rarely happen in isolation, making prevalence rates much harder to assess; more often, clients experience a combination of abuse types from the same abuser, and clients that have been abused once are more likely to experience further victimization (Teicher et al., 2006). The National Child Traumatic Stress Network (2015) reported that 78% of children they surveyed who had experienced at least one type of trauma had also experienced more than one type.

In a study designed to examine five types of childhood trauma in a sample of adult clients, specifically in terms of their connection to trauma symptoms in adulthood, Shi (2013) found that nearly 75% of clients in their sample had experienced some level of

childhood abuse or neglect. As Shi (2013) notes, the effects of childhood abuse, specifically psychological maltreatment, can permeate a client's life and symptoms may be found throughout the array of presenting issues and across client types, from individual, to couple and family cases. A more unified approach to assessing for childhood psychological maltreatment, among other types of child abuse, can provide valuable information regarding prevalence rates for professionals working to assess and treat clients in a variety of mental health settings.

Effects of psychological maltreatment. For many years researchers have argued that psychological maltreatment is a "stand-alone form of maltreatment and the core of all forms of childhood maltreatment" (Harvey et al., 2012, p. 238). In their seminal article on psychological maltreatment, Hart and Brassard (1987) argued that psychological maltreatment is inherent in all forms of child maltreatment and that it is the "destructive power of all forms of child abuse and neglect" (p. 161). This is supported by the fact that the long term damaging effects of child abuse are often psychological in nature.

Throughout the years, studies have supported the idea that psychological maltreatment may be more harmful to psychological functioning later in life than physical or sexual abuse are when not combined with long term psychological abuse (van Harmelen et al., 2010). Rosenkranz, Muller, and Henderson (2012) examined the effects of psychological maltreatment in relation to substance abuse in a sample of youth, ages 16-24. They found that youth with a history of psychological maltreatment and exposure to interpersonal violence at home were significantly more likely to have problems with substance abuse than youth who reported no history of psychological

maltreatment. Moreover, there was not a statistically significant difference in the predictive ability of psychological maltreatment alone and psychological maltreatment combined with exposure to interpersonal violence. Regression results indicated that psychological abuse experiences significantly predicted the severity of substance use issues in the same sample.

In another study, van Harmelen et al. (2010) found that psychological abuse related to low self-worth and negative self-associations, as well as an increased risk for developing anxiety or depressive disorders later in life. Researchers found that emotional maltreatment had a stronger relationship with enhanced automatic self-associations than physical or sexual abuse. This suggests that while physical acts of abuse are damaging, the long-term effects of physical abuse are more connected to distorted beliefs that clients internalize whereas psychological abuse has been shown to significantly increase a client's negative internalized beliefs. In turn, these internalized and distorted beliefs can contribute to a host of psychological problems that may (or may not) later be connected to childhood psychological maltreatment in therapy.

When treating adults with depression or anxiety, therapists do not always consider their clients' background of possible childhood abuse until much later in therapy, since many clients do not always report emotional maltreatment as abuse. As a result, the effects of childhood emotional abuse and neglect are still considerably underestimated in therapy (Spinazzola et al., 2014; van Harmelen et al., 2010). A more unified and inclusive definition of childhood psychological maltreatment, combined with a better understanding of relationships between popular measures of psychological maltreatment,

will greatly assist researchers and clinicians in recognizing and treating clients who have experienced childhood psychological abuse.

Childhood Maltreatment and Complex Trauma

It has long been accepted that all forms of childhood abuse and neglect are associated with negative outcomes in adulthood, and researchers have produced many studies that examine individual types of maltreatment and various specific outcomes, including medical, genetic, and psychological (Nemeroff, 2016). As previously discussed in this chapter, studies have examined the relationships between childhood sexual, physical, and psychological abuse, as well as all types of neglect, and their connection with negative outcomes in adulthood and methods by which these outcomes may occur (e.g., Teicher & Samson, 2016; Vachon, Krueger, Rogosch, & Cicchetti, 2015). Researchers have repeatedly connected childhood maltreatment to the symptoms of Posttraumatic Stress Disorder (PTSD), among many other disorders, and noted that interpersonal traumas, or trauma that occurs within a relational context, are "more likely to result in posttraumatic stress disorder than other types of traumatic events" (Schwerdtfeger & Nelson Goff, 2007, p. 39). This is consistent with the growing body of literature that defines Complex Trauma (CT) as "exposure to multiple and chronic interpersonal traumas in childhood, typically occurring within the caregiving system…and is associated with a complex range of symptoms and impairments across several areas of development" (Kisiel et al., 2014 p. 1).

Complex Trauma and Self-Organization

As discussed in Chapter 1, the diagnosis of CT will be included in the 11th

revision of the *International Classification of Disorders* (ICD-11) (Hyland et al.,

2016). In the ICD-11, the diagnostic criteria for PTSD include three groups of

symptoms: (a) reexperiencing of the trauma in the present, (b) avoidance of traumatic

reminders, and (c) a persistent sense of threat that is manifested by increased arousal and

hypervigilance. In addition to the existing symptoms of PTSD, the ICD-11 definition of

Complex Post Traumatic Stress Disorder (CPTSD) will include three categories of

symptoms related to disturbances in self-organization (Hyland et al., 2016). Self-

organization is the "process by which a structure or pattern emerges in an open system"

(Barton, 1994, p. 1). The additional symptom categories for CPTSD include (a) affective

dysregulation, (b) negative self-concept, and (c) disturbed relationships (Hyland et al.,

2016).

In an important article that explains the concept of self-organization and its

connection to psychological systems, Barton (1994) identifies general characteristics of

self-organization and describes examples of self-organization in chemical, biological, and

psychological contexts. He notes that one of the most general properties of self-

organizing systems in living organisms "involves the ability to develop stable yet flexible

structures that serve important biological needs" (Barton, 1994, p. 8). This principle was

significant to foundational of studies of brain development, as well as studies of the

development of mental states in infants long before brain imaging technology became

readily accessible (Wolff, 1987), and the principle of self-organizing systems was also

used in studies of multiple personality disorder and trauma in the late 1980s and 1990s (Barton, 1994).

Researchers proposed that as they age, children develop a variety of different mental states and, over time, consolidate these states into a "more or less coherent self" (Barton, 1994, p. 11). However, when the development process is interrupted by traumatic experiences, the organization of these mental states may be disrupted and a sense of self "fails to consolidate" (Barton, 1994, p. 11). Barton's (1994) principle of self-organization, and the resulting disturbances in self-organization occurring from traumatic experiences, has become a central tenet for the understanding of interpersonal trauma.

The symptoms of CPTSD in the ICD-11 that relate to disturbances in self-organization are (a) affect dysregulation, (b) negative self-concept, and (c) disturbed relationships, and they have all been found to be strongly associated with childhood maltreatment that occurs in interpersonal relationships (Hyland et al., 2016). Kisiel et al. (2014) examined the connection of exposure to multiple interpersonal traumas to dysregulation across multiple areas of functioning. They found that children and adolescents who experienced trauma from caregivers had "significantly higher levels of affective/physiological, attentional/behavioral, and self/relational dysregulation in addition to post traumatic stress" (p. 1) symptoms as opposed to youth who did not experience trauma from caregivers. They note that numerous studies have supported the idea that exposure to "multiple and chronic interpersonal trauma in childhood, typically occurring within the caregiving system" is connected with a complex range of symptoms, and greater symptom complexity and more severe impairment than non-relational trauma

(Kisiel et al., 2014, p. 1). Their results are consistent with many other studies (e.g. Cloitre et al., 2009; D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012; Marwaha et al., 2016; Schmid, Petermann, & Ferget, 2013) that have identified differences in outcomes of interpersonal trauma as opposed to more traditional types of trauma that often lead to classic PTSD symptoms.

Schmid, Petermann, and Ferget (2013) explain that the diagnosis of PTSD often is appropriate for what they call *type I trauma*, or "single, well-defined, more public traumata such as accidents, natural disasters, and wartime experiences" (p. 2), but they suggest that the literature has clearly established a second type of trauma they call *type II trauma*, a "series of related, sequential traumata such as neglect, maltreatment, and sexual abuse often committed secretly and over longer time periods by persons close to the victim" (p. 2). Without an appropriate diagnosis available, such as CPTSD, individuals who experienced more type II trauma are often diagnosed with a variety of different disorders across their lifespan, including attachment disorders, conduct disorders, emotional disorders, and personality disorders (Schmid, Petermann, & Ferget, 2013). Schmid, Petermann, and Ferget (2013) argue that the symptoms that lead to these various diagnoses can be explained through the lens of complex trauma and its resulting difficulties in self-regulation, including emotional and physiological dysregulation, attention and behavioral dysregulation, and self and relational dysregulation. These findings are consistent with the diagnosis of CPTSD in the ICD-11 and provide significant support for the need to assess complex trauma as a coherent group of symptoms so treatment can appropriately focus on connected symptoms and help individuals work to overcome the effects of childhood maltreatment.

A growing body of literature has connected individual types of relational and complex trauma to accompanying issues of dysregulation, and studies are beginning to consider the combined effects of complex trauma on the larger issue of interruptions in mental, emotional, and psychological development that can lead to lifelong struggles with self-organization and regulation (e.g. Cloitre et al., 2009; D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012; Harvey, Dorahy, Vertue, & Duthie, 2012; Marwaha et al., 2016; Schmid, Petermann, & Ferget, 2013; Spinazzola et al., 2014; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). In the attempt to better understand how these disruptions in self-organization and regulation occur as a result of trauma, and in hopes of finding ways to assist individuals with the challenging task of overcoming these difficult symptoms, many researchers have begun to investigate the methods by which this disruption occurs by turning to the growing field of neurobiology.

Basics of Brain Development

Brain development begins in the third week of fetal development and continues into young adulthood (Stiles & Jernigan, 2010). Although brain development spans many years, a significant amount of foundational development occurs in childhood, and the average child's brain will reach approximately 90% of its adult volume by age 6, although structural changes will continue throughout childhood and adolescence (Stiles & Jernigan). In a comprehensive review of brain development, Stiles and Jernigan explain that a child's brain is active and growing in early childhood, and brain activity and development are shaped by a combination of gene expression and experience. This experience dependent process leads to changes in "functional organization that are also reflected in behavior" (Stiles & Jernigan, 2010, p. 328).

The brain is made up of many sections and structures, comprised of different neurons, and each section is responsible for carrying out unique functions (Stiles & Jernigan, 2010). As the human brain develops, it begins to organize itself based on patterns that it experiences from the environment. Normal brain development depends on input from all the sensory systems, but "when specific aspects of input are lacking, alternative patterns of brain organization can and do emerge" (Stiles & Jernigan, 2010, p. 344) and, in this way, an individual's specific experiences can have important effects on the process of brain development.

The term "experience expectant development" was first introduced in 1987 (Greenough, Black, & Wallace,1987) and refers to the idea that early childhood experiences play a critical role in brain development as the child's brain seeks to organize itself around patterns that are expected to occur based on previous experiences, so the child is able to develop a sense of self in relation to his environment and others in his or her world. Throughout childhood and later in life, the brain develops and modifies functional neural systems based on continued input, which has been termed "experience dependent learning" (Greenough, Black, & Wallace,1987; Stiles & Jernigan, 2010).

Although an individual's genetics provide the template for brain development, it is well accepted that brain development also requires input from external experiences. The role of these experiences in brain development is critical to the study of childhood maltreatment because they significantly interrupt the process of healthy brain development, and thereby lead to the symptoms of disturbances in self-organization described in the ICD-11 description of CPTSD (Hyland et al., 2016). In an effort to better understand the connection between different types and timing of experiences and their

effects on brain development, the field of neurobiology has begun investigating aspects of specific types of maltreatment and the specific timing of those experiences that may lead to different types of brain disturbances resulting in different outcomes in adulthood.

<center>**Sensitive Periods of Brain Development**</center>

Many studies have been formed around the idea that the severity of outcomes in adulthood is directly related to the number of adverse childhood experiences, regardless of when in childhood they were experienced (Andersen et al., 2008; Jaye Capretto, 2017). A clear example of this approach is the Adverse Childhood Experiences study (Anda et al., 2006; Felitti et al., 1998) in which the authors found a dose-dependent linear relationship between the total number of adverse childhood experiences noted on the Adverse Childhood Experiences Questionnaire and the number and severity of negative physical outcomes in adulthood (Felitti et al., 1998). Adverse experiences that were measured included abuse, neglect, and other environmental risk factors, such as family dysfunction (Anda et al., 2006). These findings are consistent with the cumulative risk hypothesis, which states that the "accumulation of risk factors increases the probability of adverse outcomes", (Chartier, Walker, & Naimark, 2010, p. 455; Sameroff, 2000). Andersen et al. (2008) report that the ACE study and others like it have shown that "early onset and longer duration of abuse have been associated with greater morphological change" (p. 292) in brain structure and function, but they note that this may be a somewhat simplistic view of the situation.

However, another model has become popular in recent years that posits that "stress-susceptible brain regions have their own unique sensitive periods (or windows of vulnerability) to the effects of early stress" (Andersen et al., 2008, p. 292). Andersen et

al. (2008) emphasize that although these two approaches may appear similar in practice, the focus on the specific timing of maltreatment is critical to improving our understanding of the neurobiological basis of outcomes of maltreatment and "shed new light on the underlying temporal aspects of gene × environment interactions that lay at the heart of most psychiatric vulnerabilities" (Andersen et al., 2008, p. 293). A number of studies have confirmed the relationship between higher scores on the ACE and an increased risk for negative outcomes in adulthood, such as depression, post-traumatic stress disorder, suicidal behaviors, emotion regulation issues, and eating disorders (Carrol, Currier, McCormick, & Drescher, 2017; Murphy et al., 2016; Stein, 2014; Vieira, Ramalho, Brandao, Saraiva, & Goncalves, 2016). However, it is possible that the best explanation of the connection between adverse childhood experiences and negative outcomes is not merely a product of the cumulative stress resulting from increased exposure but rather a product of the specific timing that the adverse experience occurred.

Khan et al. (2015) agree that the connection between childhood maltreatment and adverse childhood experiences may appear dose-dependent between a "number of different types of maltreatment and risk because multiplicity of exposure increases the likelihood of experiencing the most deleterious forms of adversity at the most susceptible times" (p. 2). Higher severity scores on measurements like the ACE or Childhood Trauma Questionnaire (Bernstein et al., 1994) may indicate exposure to more types of maltreatment or greater frequencies of maltreatment, which then increases the probability that those experiences occurred during critical age periods. However, in contrast to the simple idea that stress accumulated throughout childhood from these negative experiences is directly related to increased risk in adulthood, there is growing evidence

for specific age ranges in which different brain regions are most susceptible to the effects of stress (Khan et al., 2015).

Studies of sensitive, or critical periods, of brain development have connected exposure to maltreatment at different ages with changes in specific brain structures. For example, Andersen et al. (2008) found that the experience of childhood sexual abuse at ages 3-5 and 11-13 was significantly associated with hippocampal volume, while childhood sexual abuse between the ages of 9-10 and 14-16 were associated with changes in the corpus callosum and prefrontal cortex gray matter volume (GMV). Another study found that witnessing domestic violence between the ages of 7 and 13 were associated with changes in the visual cortex (Choi, Jeong, Polcari, Rohan, & Teicher, 2012; Tomoda, Polcari, Anderson, & Teicher, 2012). Furthermore, in a longitudinal study, Pechtel, Lyons-Ruth, Anderson, and Teicher (2014) found that amygdala volume was most vulnerable to even slight maltreatment between the ages of 10 and 11, while the hippocampus was found to be most vulnerable at age 7 and between 13-14 years of age.

While some studies have focused on changes in brain structures, others have worked to connect the combination of individual types of maltreatment and their developmental timing with specific outcomes in adulthood. For example, Teicher, Samson, Polcari, and McGreenery (2006) and Anderson, Rabi, Lukas, and Teicher (2010) suggested that emotional maltreatment was a stronger risk factor than physical abuse on symptoms of depression. The same studies found that the risk of drug abuse was higher for participants who experienced more physical abuse than emotional abuse or neglect. In reviews of literature that have examined the combination of maltreatment and sensitive periods of brain development, while they all agree that sensitive periods exist and are

critical to our understanding of the effects of childhood maltreatment, there is not a clear

consensus on which period is the most vulnerable. Some authors argue that maltreatment

in early childhood presents greater risk than later childhood, while others assert that

maltreatment in middle or later childhood results in greater risk for negative outcomes.

Keiley et al. (2001) suggest that physical maltreatment experienced in early childhood

was connected to greater numbers of both externalizing and internalizing symptoms than

physical maltreatment that occurred later in life.

Additionally, Cowell, Cicchetti, Rogosch, and Toth (2015) found that that

maltreatment in infancy was significantly associated with poorer inhibitory control and

working memory performance than those who experienced maltreatment later in life. On

the other hand, Thornberry, Ireland, and Smith (2001) found that maltreatment that

occurred either in adolescence only or across the lifespan (childhood and adolescence)

had "stronger and more consistent negative consequences during adolescence than

maltreatment experienced only in childhood" (p. 957). Furthermore, children who were

maltreated after 6 years of age were found to have a significantly impaired quality of life

compared to children who were maltreated prior to age 6 (Jud, Landolt, Tatalias, Lach, &

Lips, 2013).

Dunn et al. (2013) maintain that these studies all have valid points and there is

neurobiological evidence to support multiple sensitive periods. They explain that

maltreatment in early childhood may lead to negative outcomes in adulthood because it

causes disruptions to the "foundation of brain architecture and neurobiological systems

involved in regulating arousal, emotion, stress responses, and reward processing" (Dunn

et al., 2013, p. 956). Exposure to maltreatment later in life may be connected to more

adverse outcomes because "adolescents have developed the cognitive skills to conceptualize experiences of abuse" and "physiological stress response systems undergo substantial change during adolescence, potentially magnifying the detrimental impact of maltreatment on mental health" (Dunn et al., 2013, p. 956).

While some studies have divided age groups more simply into early childhood (0-5 years) and late childhood (over 5 years) (Alameda et al., 2015; Keiley et al., 2001), other researchers argue this is too basic of a division to match the complexity of brain development. Some researchers have examined age of exposure to childhood maltreatment according to developmental stages (Jaye Capretto, 2017; English et al., 2005; Kaplow & Widom, 2007). Kaplow and Widom (2007) tested one group of children but divided them into three different types of age groupings: (a) continuous (0-11 years), (b) dichotomous (0-5 years and 6-11 years), and (c) developmental (0-2 years, 3-5 years, 6-8 years, and 9-11 years). They found that the developmentally grouping method was the most sensitive in its ability to predict psychological and behavioral issues in adulthood (Kaplow & Widom, 2007). These results are consistent with previously mentioned studies that have identified sensitive age ranges for development of different brain structures, and multiple studies have used developmental age groupings to better detect the ability of typing and timing of childhood maltreatment to predict negative adult outcomes (e.g. Dunn, Nishimi, Powers, & Bradley, 2017; Gomez et al., 2017; Jaye Capretto, 2017;) Although new evidence is still emerging, examination of existing evidence provides strong support for the idea that sensitive periods of development are an important factor to consider in understanding the relationship between childhood maltreatment and the process by which it leads to negative outcomes in adulthood.

Complex Trauma and Internalizing Symptoms

The categories of internalizing and externalizing symptoms were first introduced in 1966, and simply put, internalizing symptoms "describe problems within the self" while externalizing symptoms "describe conflict with the environment" (Achenbach, 1966, p. 10). In the initial factor analysis, symptom descriptions such as "fearful", "worrying", "withdrawn", "obsessions", "depression", "confused", and "crying" loaded under the category of internalizing symptoms, along with many other somatic symptoms such as "stomachaches", "headaches", "insomnia", and "fatigue" (Achenbach, 1966). Over 20 years ago, in her groundbreaking proposal of complex trauma as a unique collection of symptoms, Herman (1992) provided an extremely persuasive argument for the development of internalizing symptoms as a result of chronic and prolonged exposure to interpersonal trauma. Herman (1992) argues that "depression is reported as the most common finding in virtually all clinical studies of chronically traumatized people" (p. 382), and many current studies continue to find this to be true (e.g. Green & Myrick, 2014; Khan et al., 2015; Sachs-Ericsson et al., 2010).

In a recent study that examined the validity of the diagnosis of Complex PTSD (CPTSD), Palic et al. (2016) found that among individuals that experienced different types of trauma (childhood sexual abuse, adulthood trauma of severe interpersonal intensity, and adulthood trauma of mild interpersonal intensity), those experiencing both childhood and adulthood trauma of severe interpersonal intensity met criteria for the diagnosis of CPTSD, while those experiencing trauma of only mild interpersonal intensity did not. Additionally, many who experienced prolonged interpersonal trauma were found to display primarily "anxiety symptoms" and only endorsed the symptoms of

affect dysregulation and "more pronounced interpersonal problems (i.e. guilt, feeling different, and avoiding others)" (Palic et al., 2016, p. 696). This is important to note because "reactions in this class could be occurring at the milder end of pathological adaptations to trauma, as the "anxiety symptoms" class is associated with the lowest frequency of functional impairment" among the groups (Palic et al., 2016, p. 696). Although many other symptoms of CPTSD may not be present, these anxiety symptoms are still outcomes of prolonged interpersonal trauma, and if a client presented with only "anxiety symptoms", they may not be easily connected to experiences of childhood trauma.

In a longitudinal study of maltreated children, Éither, Lemelin, and Lacharité (2004) found that children who had experienced chronic maltreatment developed significantly more emotional problems, such as anxiety and depression, than those who experienced only transitory maltreatment. Heleniak, Jenness, Vander Stoep, McCauley, and McLaughlin (2015) investigated disruptions in emotion regulation processes as a possible link between childhood maltreatment and psychopathology in adolescents. They proposed that child maltreatment may be connected to emotional reactivity and maladaptive cognitive patterns that can lead to psychological distress, and they examined these in connection with internalizing and externalizing behaviors in two different groups. For both groups, they found that childhood maltreatment was "associated with higher levels of internalizing psychopathology, elevated emotional reactivity, and greater habitual engagement in rumination" (Heleniak et al., 2015, p. 394).

The results from Heleniak et al. (2015) provide support for the role of emotion dysregulation as a pathway by which internalizing symptoms may develop as a result of

childhood maltreatment. This is consistent with the affect dysregulation diagnostic criteria of complex trauma (Hyland et al., 2016). The finding that childhood maltreatment is connected with increased rumination is also consistent with Wright, Crawford, and Del Castillo (2009), who found that a history of emotional abuse and neglect in childhood was connected to maladaptive cognitive schemas. This is also in line with the symptoms of complex trauma that involve negative self-concept and disturbed relationships, as these symptoms are connected with difficulty in relationships, due in part to the "schemas of shame and vulnerability to harm" (Wright, Crawford, & Del Castillo, 2009, p. 59).

Internalizing Symptoms and Psychological Maltreatment

Wright, Crawford, and Del Castillo (2009) found that emotional abuse and neglect significantly contributed to internalizing symptoms of anxiety, depression, and dissociation when controlling for gender, income, parental alcoholism, and other types of childhood maltreatment. Furthermore, in an analysis of a large national sample, Spinazzola et al. (2014) found that psychological abuse or neglect was "linked to the exacerbation of most outcomes" (pg. S18), including anxiety, depression, PTSD, suicidality, and low self-esteem. They also found that the clinical descriptions of those who had experienced psychological maltreatment alone were distinctly different from those who had only been physically or sexually abused (Spinazzola et al., 2014). Additionally, Spinazzola et al. (2014) report that while psychological maltreatment does not occur only within the caregiving system, evidence suggests that psychological maltreatment in the caregiving system during early childhood and throughout childhood is the most damaging to overall development. These results provide support for the

argument that psychological maltreatment plays an important role in the development of complex trauma and in the experience of internalizing symptoms in adulthood as a result of childhood abuse and neglect.

Definitional Challenges of Psychological Maltreatment

Many types of childhood maltreatment are simple enough to define and operationalize, such as sexual and physical abuse, and physical types of neglect when evidence can be directly observed. However, emotional and psychological forms of maltreatment have proven harder to define and measure. From the first definition of "mental injury" that was proposed in the Child Abuse Prevention and Treatment Act of 1974, a number of more specific, operational definitions have been proposed that focus on different aspects of psychological maltreatment, and nearly as many assessments have been created based on these various definitions (Hart & Brassard, 1987).

Common definitions used in research include both emotional abuse and neglect, and encompass both acts of commission and omission that "convey to the child that they are unwanted or worthless" (Paul & Eckenrode, 2015, p. 2). Many assessments are based on this dichotomous definition of abuse and neglect, including the Childhood Trauma Questionnaire (CTQ), which has subscales to measure both emotional abuse (EA) and emotional neglect (EN), divided by acts of commission (abuse) and omission (neglect). The CTQ is reported to be the "leading retrospective [Emotional Childhood Maltreatment] measure currently in use" (Tonmyr et al., 2011, p. 779).

A recent review of measurements of emotional maltreatment revealed 33 assessments that have been developed to capture various aspects of psychological maltreatment. These assessments have been based on related, but often separate,

operational definitions of the construct of psychological maltreatment (Tonmyr et al., 2011), although most fall into some combination of emotional abuse and emotional neglect (Baker & Festinger, 2011). Many of these assessments also assess other types of childhood abuse and have different subscales focusing specifically on each area and type of abuse.

In contrast to the dichotomous definition, the American Professional Society on the Abuse of Children (APSAC, 2011) identified six categories of psychological maltreatment: (a) spurning, rejection, and degradation; (b) exploiting or corrupting; (c) terrorizing; (d) ignoring or denying emotional responsiveness; (e) isolating; and (f) mental, physical health, and educational neglect (APSAC, 2011; Paul & Eckenrode, 2015*). Baker and Festinger (2011) developed the Psychological Maltreatment Measure and proposed that it is possibly the first assessment developed directly from the categories used by the APSAC. An initial study has been done comparing the Psychological Maltreatment Measure with the Childhood Trauma Questionnaire along with a few subscales of other instruments, but further validation is needed before this instrument can be widely used (Baker & Festinger, 2011).

While many researchers have answered Hart and Brassard's challenge of creating specific, operationalized definitions of psychological maltreatment for the purposes of assessment and treatment, the pendulum may have now swung too far in the opposite direction. It is time for the myriad of assessments and definitions to come together so researchers can build upon the work that has already been done. This study aims to provide criterion validity for the MACE, a promising new, comprehensive measure of child maltreatment and environmental factors that correlate strongly with other leading

assessments but also takes the mental health field further in assessing for, and eventually treating, childhood maltreatment.

The Need for Assessments of Childhood Maltreatment

Tests such as blood tests and x-rays have long been used in the medical field to diagnose and plan treatments. In the same way, psychological assessments are useful in diagnosing and treating mental health issues. Although they may require significant time for interpretation, psychological assessments have been found to be just as valid as medical tests (APA, 2018). Psychological assessments include screening tools and assessment tools. Screening tools are usually shorter, less involved, and are used to detect possible issues that may require more detailed investigation (Center for Substance Abuse Treatment, 2014). Assessments are more detailed and able to investigate both exposure to things that are known to cause negative outcomes, as well as symptoms of mental health issues and disorders (Center for Substance Abuse Treatment, 2014). Screening and assessments are a critical part of mental health care because "without screening, clients' trauma histories and related symptoms often go undetected, leading providers to direct services toward symptoms and disorders that may only partially explain" their issues, and "screening, early identification, and intervention serves as a prevention strategy" (Center for Substance Abuse Treatment, 2014, p. 92). Assessments of childhood maltreatment have been developed in light of the significant impact that all types of childhood maltreatment have been found to have later in life.

Measures of Childhood Maltreatment

As researchers have become aware of the lack of comprehensive measurements of childhood abuse and neglect, many have hurried to create instruments to fill this

void. The late 1990's saw a rapid increase in measures of childhood maltreatment. Most of the instruments discussed in this paper are widely used in research and occasionally used in clinical practice. These instruments, and the results of studies using them, are found in a variety of disciplines, including psychology, sociology, legal, and even in medical professional journals. All the instruments were designed to measure childhood maltreatment but each one takes a slightly different perspective on exactly what they measure and the specificity of the words chosen for their questions. Some instruments measure specific behaviors that may have been inflicted directly on the respondent while others attempt to measure environmental factors that are also known to contribute to adverse childhood experiences.

Child Abuse and Trauma Scale

The Child Abuse and Trauma Scale (CATS) was designed by Sanders and Becker-Lausen in 1995 during the rush to create useful measures of childhood maltreatment. The CATS was designed primarily for use in a research context, "particularly where group rather than individual measures are sought, but may also be useful in clinical assessment as an initial screening instrument" (Sanders & Becker-Lausen, 1995, p. 321). The main goal of the CATS was to measure the individual's "present, subjective perception of the degree of stress or trauma present in his/her childhood" (Sanders & Becker-Lausen, 1995, p. 316). The creators of the CATS sought a quantitative measure that found a balance between "global and specific, between subjective and objective" (Sanders & Becker-Lausen, 1995, p. 320). With this goal in mind, the developers chose to word their questions in a softer fashion, avoiding specific questions about things such as type of sexual penetration, etc. but instead asked things

like "were there traumatic or upsetting sexual experiences when you were a child or teenager that you couldn't speak to adults about?" (Sanders & Becker-Lausen, 1995, p. 317).

In the initial study, the CATS questionnaire was administered to participants as a home environment questionnaire rather than a specific measure of child abuse or trauma. The developers felt this furthered their goal of balancing the subjective and objective by assessing the respondent's overall view of their childhood rather than asking about specific abuse. After analyzing their initial data, the developers found three subscales of sexual abuse, punishment, and negative home environment/neglect (Sanders & Becker-Lausen, 1995). An additional subscale of emotional abuse was added by Kent and Waller (1998) by drawing from questions already existing within the CATS. This created a seven item subscale which was shown to be the most "consistent predictor of psychopathology" among the sample they tested (Kent & Waller, 1998, p. 397).

The CATS has been shown to have strong validity and reliability, and has correlated significantly with variables of dissociation, depression, and stressful life events as well as with impairment in interpersonal relationships (Sanders & Becker-Lausen, 1995). In the initial development of the CATS, it was tested on two separate samples of college students, and in both samples it was found to have strong convergent validity with other measures of child maltreatment and dissociation, and it was found to have strong reliability, with Cronbach's $\alpha = .90$ for the overall instrument, and ranging from .63-.86 for each individual subscale (Sanders & Becker-Lausen, 1995). The CATS has been widely used in research across various disciplines and has been particularly popular in studies assessing dissociative symptoms (Lynn et al., 2014), a common effect of

trauma. It has also been used in multiple studies examining the effects of childhood

trauma on attachment styles, (Fossati et al., 2016; Oshri, Sutton, Clay-Warner, & Miller,

2015) depression, and borderline personality symptoms in adulthood (Fossati, et al.,

2016; Williams, Debattista, Duchemin, Schatzberg, & Nemeroff, 2016).

Childhood Trauma Questionnaire

Developed in 1994, the Childhood Trauma Questionnaire (CTQ) has become one

of the most widely used and researched retrospective measures of childhood

maltreatment (Baker & Maiorino, 2010; Tonmyr et al., 2011). Unlike other assessments

described in this section, the CTQ focused primarily on specific things the respondent

experienced rather than assessing environmental conditions that are often correlated with

child abuse. The original 70 item instrument, as well as the 28 item short form (CTQ-SF)

was designed to "provide a brief, reliable, and valid assessment of a broad range of

traumatic experiences in childhood" (Bernstein et al., 1994). At the time it was

developed, the CTQ was one of the first instruments to specifically capture occurrences

of neglect in childhood as well as abuse, which is often understood as the difference

between acts of omission versus commission (Baker & Festinger, 2011). The CTQ

effectively assesses for five primary types of maltreatment and has subscales for

emotional abuse, physical abuse, sexual abuse, and emotional and physical neglect

(Spinhoven et al., 2014). In an initial study examining the reliability and validity of the

CTQ, it was found to have strong convergent validity and excellent reliability, with

Cronbach's α ranging from 0.79-0.94 for the individual subscales, and Cronbach's α =

0.95 for the entire scale (Bernstein et al., 1994).

As the most widely researched retrospective measure of child maltreatment, the CTQ has been translated and validated on samples in Korea (Kim, Park, Yang, & Oh 2011), Brazil (Grassi-Oliveira et al., 2014), Sweden (Gerdner & Allgulander, 2009), Germany (Klinitzke, Romppel, Häuser, Brähler, & Glaesmer, 2012), and Turkey (Vedat, ÖZTÜRK, & İkikardeş, 2012). It has been used extensively in research and clinical settings worldwide. The CTQ has also been used to study childhood trauma in relation to bi-polar disorder and other mood disorders, suicidal behavior, (Aas et al., 2016; Jansen et al., 2016; van Nierop et al., 2015) emotional dysregulation (Michopoulous et al., 2015), and symptoms of psychosis, (van Nierop et al., 2015).

Adverse Childhood Experiences

Around the same time as the development of the CATS and the CTQ, the Adverse Childhood Experiences (ACE) questionnaire grew out of research taking place at a large HMO in California during the 1990s. According to van der Kolk (2014), Felitti became curious about the similarities in the backgrounds of people in their program who were unsuccessful at maintaining weight loss over time (Felitti et al., 1998). Felitti and his fellow researchers began to notice the common occurrence of what they called adverse childhood experiences. They discovered that a high number of patients with higher disease risk and occurrence had a variety of less than ideal childhood experiences that seemed common among the group sample. Among the participants, researchers noticed high incidences of childhood abuse along with similarities in what they termed household dysfunction, and experiences such as living with family members who dealt with substance abuse, mental illness, suicidal behaviors, or imprisonment (Felitti et al., 1998).

Eventually, the Adverse Childhood Experience study was formalized in partnership with the Centers for Disease Control, and the Adverse Childhood Experiences Questionnaire was developed (Felitti, et al., 1998). In the initial study, along with numerous subsequent validation studies, researchers found an extremely strong and graded relationship between the number of adverse childhood experiences and adult health risk behaviors, physical health status, and leading causes of death. According to Felitti et al. (1998) as the score on the ACE increases, the respondent's risk factors for "several of the leading causes of death in adults" also increased and appeared to have a cumulative effect (Felitti et al., 1998, p. 245).

The ACE questionnaire contains ten questions, along with a few sub-questions, that address different categories of psychological abuse, physical abuse, contact sexual abuse, as well as exposure to substance abuse, mental illness, violent treatment of mother or stepmother, and criminal behavior. From the time of its creation, as a result of the partnership of Kaiser Permanente and the Center for Disease Control, the ACE questionnaire has been well researched and found to have extremely strong predictive ability on physical and mental health outcomes such as depression and other mental health issues (Murphy et al., 2016; Stein, 2014), cancer risk behaviors (Mouton, Hargreaves, Liu, Fadeyi, & Blot, 2016), post-traumatic stress disorder and suicidal behaviors (Carrol, Currier, McCormick, & Drescher, 2017). The ACE has also consistently been found to have strong reliability (Cronbach's $\alpha = .88$) (Murphy et al., 2016). Emotion regulation, non-suicidal self-injury, and eating disorders have also been strongly predicted through the use of the ACE (Vieira, Ramalho, Brandão, Saraiva, & Gonçalves, 2016).

Although other measures have considered additional factors such as household dysfunction and self-abusive behaviors of caretakers, the ACE is one of the most well-known assessments to combine the effect of external factors with child abuse. In keeping with the cumulative risk hypothesis (Sameroff, 2000), the findings of the ACE study suggest that negative experiences in childhood have a cumulative detrimental effect, and are consistent with ACE results indicating strong relationships between the identified categories of adverse childhood experiences and affective, somatic, substance abuse, memory, sexual, and aggressive behaviors (Anda et al., 2006; Reavis, Looman, Franco, & Rojas, 2013). The ACE questionnaire has amassed a large body of research to support the idea that a broader context should be considered beyond specific acts of child physical, sexual, or emotional abuse and neglect when assessing the effects that childhood trauma may have on an individual far into adulthood.

Early Trauma Inventory

Although many measures of childhood maltreatment were already in use as a result of the increased activity of the 1990s, Bremner, Vermetten, and Mazure (2000) developed the Early Trauma Inventory (ETI) in an effort to gather more comprehensive data about early traumatic experiences. In addition to gathering specific data about types of maltreatment and specific behaviors, as well as environmental conditions, the ETI gathers information about the frequency of abuse, the age of the child when the maltreatment occurred, the age and relationship of the perpetrator, as well as the perceived impact each instance of maltreatment had on the child (Bremner et al., 2000). The ETI can be administered as a clinician-administered interview, or a self-report version, and both approaches have been found to have good reliability and validity.

In the preliminary study, the ETI was found to have strong concurrent validity with a variety of similar measures as well as excellent reliability (Cronbach's $\alpha = .95$) (Bremner et al., 2000). The ETI short form has even been expanded to be used and tested in Brazil (Osório et al., 2013) and Korea (Jeon et al., 2009). As the field of child abuse assessment grew, researchers began to wonder if age of exposure as well as frequency and timing of later exposures had any significant impacts, and the ETI was created in effort to specifically collect this information for further study.

Developers of the ETI identified four domains of childhood trauma they wanted to assess; general trauma, physical, emotional, and sexual abuse. They also created a Childhood Trauma Severity Index, or measure of the "total burden of abuse over childhood", which was intended to provide "a continuous variable measure of abuse that could be easily used in research or clinical applications" (Bremner et al., 2000, p. 3). The creators intended for the ETI to cover a broader scope of measurement than previous instruments and they asserted that, although "presence of abuse items on the ETI is not considered to represent a definition of abuse", the ETI can be a helpful tool in "developing an operationalized criteria for evaluating abuse for clinical or research purposes" (Bremner et al., 2000, p. 3).

The ETI has been used in many areas of research, including studies in neurobiology (Gupta et al., 2014), assessment and treatment of suicidal behavior in Korean students (Jeon et al., 2009), assessment and treatment of post-traumatic stress disorder (Bishop, Rosenstein, Bakelaar, & Seedat, 2014), drug abuse (Svingen et al., 2016), schizophrenia (Ruby, Rothman, Corcoran, Goetz, & Malaspina, 2015), and anxiety disorders (Myers & Wells, 2015). With its broad scope of questions, the ETI has

been widely used in research, and also has great implications for clinical practice in starting a discussion with clients about what constitutes abuse.

Maltreatment and Abuse Chronology of Exposure Scale

The Maltreatment and Abuse Chronology of Exposure Scale (MACE) (Teicher & Parigger, 2015) was published in 2015 and was a significant addition to the field of assessment in that it worked to combine features of other popular instruments and expand the categories of child maltreatment being assessed. The MACE assesses for emotional and physical neglect, non-verbal emotional abuse, parental verbal abuse, parental physical maltreatment, peer emotional abuse, peer physical bullying, sexual abuse, and witnessing interparental violence and violence to siblings; ten separate categories in all (Teicher & Parigger, 2015).

The developers wanted to create a retrospective self-report instrument that could "assess exposure to childhood maltreatment that included items for peer victimization, witnessing violence towards mothers, fathers, and siblings, and eliminated items that could confound exposure with familial risk" (Teicher & Parigger, 2015, p. 3). The creators of the MACE felt it was important to include more than just the household dysfunction that the ACE added. They also wanted the MACE to capture other environmental abuse factors such as peer bullying, or witnessing violence towards siblings, which have both been shown to affect children and their risk for more difficulties in adulthood (Teicher & Parigger, 2015). The full version of the scale also gathers data about the age of the child at the time each type of abuse occurred, which allows research to assess for sensitive periods of development during which abuse may have occurred, as well as gathering information about exposure levels that changed

across child development (Dunn, McLaughlin, Slopen, Rosand & Smoller, 2013; Teicher & Parigger, 2015).

In its preliminary development, the MACE scale has been shown to have excellent reliability and validity as well as strong correlations with the CTQ and the ACE. However, it has also been able to account for even more variance in psychiatric symptoms than either the CTQ or the ACE. The MACE is able to account for more types of maltreatment than were previously possible to evaluate with earlier instruments. It even encompasses many features of psychological maltreatment by dividing them into categories of non-verbal emotional abuse, parental verbal abuse, emotional neglect, and peer verbal abuse and ostracism (Teicher & Parigger, 2015). Since the time of its development, the MACE has been used to examine childhood maltreatment, depression, and suicidal ideation as a result of emotional abuse during developmental sensitive periods (Khan, et al., 2015), in addition to studying brain development and the role of maltreatment during certain age ranges and periods of development as well as their effects on mental and physical health in adulthood (Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014; Schalinski & Teicher, 2015; Ohashi et al., 2017).

In developing questions that gather specific details in addition to subjective perceptions, the MACE scale moves well beyond the limitations of both the CATS and CTQ. Using questions that assess more than just witnessing violence to a mother or experiencing abuse from peers, the MACE expands on the work of ACE by assessing for environmental factors. By asking about the timing of abuse as well as assessing the impact of abuse at different age levels, the MACE also expands on the benefits in the ETI. Initial results of the MACE scale criterion validity are promising but further

validation is needed to place the MACE scale on par with the CTQ and ACE. Doing so would combine the best of all worlds in assessment and allow the mental health field to move forward with comprehensive assessment of retrospective reports of child maltreatment.

Summary

There is strong support in the literature for the idea that complex trauma leads to internalizing symptoms, and in turn, these internalizing symptoms cause significant impairment in the lives of adults who have experienced childhood maltreatment and other types of complex trauma. Expert clinicians agreed with the distinction between the treatment approaches for simple PTSD versus complex PTSD, and all agreed that the focus on anxiety and stress management and emotional regulation were critical to the effective treatment of CPTSD (Cloitre et al., 2011). Without an awareness of a client's trauma background, many clinicians may not connect internalizing symptoms or cognitive distortions to clients' internalizing symptoms and relational disturbances that are causing functional impairment and causing them to seek treatment. It is important to have effective methods of assessment that can be used in therapy that can help clients and clinicians connect childhood experiences to present day symptoms, and therefore allow clinicians to employ the most effective treatments.

The MACE (Teicher & Parigger, 2015) was designed to capture 10 types of maltreatment along with information about the specific timing of the experiences in order to give researchers and clinicians the most information possible to design effective treatments. Evidence of sensitive periods of development and increased vulnerability to the effects of childhood maltreatment increases the need for mental health professionals

to know more about the type and timing of abuse that was experienced in order to best assist clients. Preliminary studies have shown the MACE to be an accurate and effective instrument for gathering this data (Dunn et al., 2013; Khan et al., 2015; Teicher & Shalinski, 2015).

The current study is based on the idea that the experience of childhood maltreatment will be strongly connected to the experience of internalizing symptoms in adulthood. Internalizing symptoms have also been linked specifically to psychological maltreatment, and of the current instruments available, the MACE captures more types of maltreatment, including psychological maltreatment, than any other (Teicher & Parigger, 2015). If the MACE is a valid assessment of childhood maltreatment, then it should demonstrate strong predictive validity on the experience of internalizing symptoms for participants who have been exposed to childhood trauma.

CHAPTER III

METHODOLOGY

This chapter contains the methods by which I sought to answer the following research questions:

1)   What is the relationship of the individual categories of maltreatment measured by the MACE (parental verbal abuse; parental non-verbal abuse; parental physical maltreatment; sexual abuse (familial or extra-familial); witnessing interparental violence; witnessing violence to siblings; peer verbal abuse and ostracism; peer physical bullying; emotional neglect; and physical neglect) to severity of internalizing symptoms as measured by a total score for the DASS-21?

2)   To what degree does the total score for each participant on the MACE predict their experience of internalizing symptoms as measured by the DASS-21?

3)   To what degree does age of exposure predict participants' experience of internalizing symptoms as measured by the DASS-21?

Research Design

This study is a quantitative correlational research design that examined the ability of the MACE total score and subscale scores to predict participants' scores on an outcome measure of internalizing symptoms (DASS-21). A quantitative descriptive design is intended to describe the relationship between variables (Creswell, 2013; Heppner et al., 2016; Lunenburg & Irby, 2008). This design was chosen as the best fit to answer the research questions, which aimed to examine the relationship between scores on the MACE and the DASS-21. Correlational research designs do not establish causal

relationships, but they are appropriate for contributing to a deeper understanding of the

relationship between the variables being studied (Creswell, 2013).

Participants

A community sample was chosen for this study. Participants were eligible to

participate if they are over 18 years of age and consent to participate in the research. It

was not required that participants have any specific experience of childhood maltreatment

or previous mental health diagnosis, as the MACE was designed and normed on both

community and clinical populations and found to be appropriate for both groups. In order

to account for attrition and unusable scores, the target sample size for this study was 150

participants. A total of 260 results were collected, and after removing incomplete cases

and outliers, N=239. A canonical correlation was used to analyze the data, and for

sufficient power, a minimum of 10-15 participants were necessary for each variable

(Tabachnick & Fidel, 2007). For this sample, although different analyses used different

combinations of variables, the most used in any given analysis was 12, and the ratio was

20 participants for each of the 12 variables.

Participants were sought through a combination of convenience and snowball

sampling procedures. These sampling procedures are nonprobability measures that do

not rely on the use of randomization to select participants, and are often used when

randomization is not possible (Lunenburg & Irby, 2008). Convenience sampling

involves recruiting participants who are accessible and willing to participate in the

research (Lunenburg & Irby, 2008). Snowball sampling involves asking participants to

share the research opportunity with their contacts who might be willing to participate as

well (Lunenburg & Irby, 2008). These sampling procedures are acceptable and effective

for this type of study but limit the generalizability of the results to individuals who are similar to the participant population in terms of demographics and experiences. Although participants were not required to have experienced childhood maltreatment, it is important to also collect data from participants who have some likelihood of having experienced some type of child abuse and neglect or have experienced internalizing symptoms of anxiety or depression. Therefore, the sample for this study included an unrestricted community sample and a clinical sample. A clinical sample was defined as a participant who had received at least one mental health diagnosis within their lifetime. The target for the clinical population was to be half of the overall sample size, or 75 participants.

After IRB approval was obtained, the MACE, and the Depression, Anxiety, and Stress Scale (DASS-21) were administered to participants via an anonymous, online survey format. There were 211 females (88%), 27 males (11%), and one person who declined to identify their gender. The majority of participants were between 18 and 25 (63%), followed by 36 to 50 years old (14%), 26 to 35 (13 %), 51 to 65 (8%), and 65 to 75 (.8%). The majority of participants were Caucasian (64%), followed by Hispanic/Latino (15%), African American (14%), Multiracial (.8%), Asian (.4%), and various mixed ethnicities where participants chose more than one ethnicity category (5%). The clinical population was defined as those who had received at least one mental health diagnosis in their lifetime, and 114 (48%) were considered to be a clinical population, while 125 (52%) were considered to be non-clinical. See Tables 1-4 for summary of demographics.

Table 1

Gender of Participants

Gender	Number Reported	Percent
Male	27	11%
Female	211	88%
Prefer not to say	1	.4%

Table 2

Age of Participants

Age	Number Reported	Percent
18 to 25 years	152	63%
26 to 35 years	32	13%
36 to 50 years	33	14%
51 to 65 years	20	8%
65 to 75 years	2	.8%

Table 3

Ethnicity

Ethnicity	Number Reported	Percent
Caucasian	154	64%
African American	33	14%
Hispanic/Latino	36	15%
Asian	1	.4%
Multiracial	2	.8%
Other combinations	13	5%

Table 4

Mental Health Diagnosis

Diagnosis	Number Reported	Percent
Anxiety	41	17%
Bi-Polar Disorder	5	2%
Depression or Dysthymia	45	19%
Personality Disorder	1	.4%
Post-Traumatic Stress Disorder	13	5%

(continued)

Diagnosis	Number Reported	Percent
Schizophrenia	1	.4%
N/A	125	52%
Other	8	3%

This study used nine of the 10 subscales of maltreatment included in the MACE, and all three of the subscales from the DASS-21. The largest reported category of maltreatment was Parental Physical Maltreatment (88%), and this category included spanking of all types. However, the severity of the score was very low if a participant answered yes to only the spanking question but none of the rest of the questions. The next largest category reported was Peer verbal abuse (80%) followed by Parental non-verbal emotional abuse (78%), and Parental verbal abuse (62%). Additionally, the largest category of internalizing symptoms was Stress (93%), which means that 93% of the participants answered yes to at least one question that measured symptoms of stress in the DASS-21. See Table 5 for a summary of all types of maltreatment and internalizing symptoms.

Table 5

Types of Maltreatment and Internalizing Symptoms

Variable	Number Reported	Percent
Sexual Abuse	43	18%

(continued)

Variable	Number Reported	Percent
Parental Verbal Abuse	149	62%
Parental Non-Verbal Emotional Abuse	187	78%
Parental Physical Maltreatment	211	88%
Witness IPV	78	32%
Peer Verbal Abuse	193	80%
Peer Physical Abuse	86	36%
Emotional Neglect	123	51%
Physical Neglect	47	20%
Stress	224	93%
Anxiety	208	87%
Depression	213	89%

Instrumentation

Demographic Questionnaire

A demographic questionnaire was developed for this study and includes questions about each participant's age, gender, ethnicity, education level, marital status, living arrangement, employment status, employment type, income level, and any history of mental health diagnosis. Nearly all questions were also asked about the participants' primary caregiver(s), including age, gender, ethnicity, education level, marital status,

living arrangement, number of children in the household, employment status, employment type, income level, and any history of mental health diagnosis. Most questions are formatted with boxes for participants to check appropriate answers, with occupation type available for participants to write in their answers.

<center>**Maltreatment and Abuse Chronology of Exposure Scale (MACE)**</center>

The MACE was developed in 2015 by Teicher and Parigger in an effort to provide a reliable and valid retrospective measure of childhood maltreatment that encompasses a wide range of maltreatment categories while also gathering information about the developmental timing of maltreatment. There are three primary versions of this instrument provided by the creators: the MAES, a 52 item version without years of exposure information, the MACE, a 52 item version with years of exposure for each question, and the MACE-X, the original version with 75 questions, including several unscored items, and years of exposure for each question. The authors suggest that the MACE-X is best suited for researchers working to develop their own version of the MACE for other populations, such as translating into other languages (Teicher & Parigger, 2015).

For this study, the MACE version was used. The MACE is comprised of 10 subscales and provides a scaled score for each subscale that can range from 0-10 and a total score of MACE severity (SUM score) that can range from 0-100 (Teicher & Parigger, 2015). The MACE contains 52 items with a yes or no answer format along with a bar for participants to indicate age of exposure for each question on an interval scale. Age categories range from 1 to 18 years and participants will be directed to check all years that apply in answer to each question.

The MACE contains 10 subscales (parental verbal abuse, parental non-verbal emotional abuse, parental physical maltreatment, childhood sexual abuse (familial or extra-familial), witnessing interparental violence, witnessing violence to siblings, peer verbal abuse and ostracism, peer physical bullying, emotional neglect, and physical neglect) that were created and tested for face validity and factor structure (Teicher & Parigger, 2015). Teicher and Parigger (2015) reported that items were "selected to bracket a range of exposure levels, and, when possible, to be maximally informative…in order to best differentiate individuals with moderate (presumably clinically significant) exposure levels" (p. 6).

Each subscale was created based on Item Response Theory and items for inclusion were analyzed and confirmed with the Rasch model, whereby the "model items only differ in their difficulty or severity, and are equally good discriminators" of the constructs being measured (Teicher & Parigger, 2015, p. 4). For all subscales the severity of exposure was measured by the number of items with positive endorsements, and the scores were scaled and recalibrated to range from 0-10, with a total exposure score across all categories that can range from 0-100. Although each question has a dichotomous answer format of yes or no, the MACE scores are organized by subscales instead of by individual question scores, and the subscale score is determined by the number of questions in each subscale that are answered yes.

This scoring method was chosen to allow the MACE to be compared with other prominent measures of childhood maltreatment, including the Adverse Childhood Experiences (ACE) measure (Felitti et al., 1998) and the Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 1994). For subscales with 4 items, severity scores

were determined based on a "linear interpolation of numbers of items positively endorsed" and were scored 0,3,5,8, and 10. For subscales that contained 5 or more items, scores for severity of exposure were determined by the number of items with positive endorsements (Teicher & Parigger, 2015). Teicher and Parigger explain that "scores typically fell between values of -4 and +4 and represent mean-centered logit scores" (p. 38). These scores were then recalibrated to range from 0-10 so that "total exposure severity levels across the 10 subscales could range from 0-100" (p. 38). The MACE SUM score was created to allow for comparison to measures like the CTQ that have severity scores for their individual subscales and their overall score of childhood maltreatment.

Criterion scores for indicating "above threshold exposure" were determined by comparing MACE severity scores to cut off scores of other instruments, and the manual and scoring files include the cut-off scores for each subscale (Teicher & Parigger, 2015, p.8). If an individual's score passes the threshold for a category, it is counted as one point, and the sum of categories provide a score from 0-10, similar to the ACE for determining a MACE multiplicity (MULTI) score to determine how many categories of maltreatment that a participant has experienced.

Reliability

According to Teicher and Parigger (2015), The MACE is appropriate for adults over 18 years of age. The developers of the MACE calculated test-retest reliability for the total MACE scores as well as the MACE scores across age groups using regression coefficients and the Bland and Altman method, which examines the difference between test 1 and 2 and requires that "the mean difference between Test 1 and Test 2 be not significantly different than zero and second that 95% of the differences between Test 1

and Test 2 fall within 2 standard deviations of the mean difference score" (Teicher &

Parigger, 2015, p. 8). The MACE scores met the Bland and Altman criteria for test-retest,

and there was no significant difference in mean scores between the first and second test

($t74$=-0.26, p = 0.80). Further, 97% of different scores were within ± 2 SD of the mean.

According to Teicher and Parigger (2015) the results of test-retest reliability indicated

very strong reliability and very little difference between participants' responses over time

in the sample used for initial development of the MACE (Severity: r = 0.91 {95% CI =

0.857-0.941; Multiplicity: r = 0.88 {95% CI = 0.815-0.922, both p values <10^{-16}}). Reliability by type was also found to be "good to very good" (defined as $0.5 < r < 0.8$)

for the subscales of emotional neglect, physical neglect, witnessing violence to siblings,

and peer emotional abuse.

Reliability by type was found to be "excellent" (defined as $r > 0.8$) for parental

nonverbal emotional abuse, parental physical maltreatment, parental verbal abuse, peer

physical bullying, sexual abuse, and witnessing interparental violence (Teicher &

Parigger, 2015). For reliability for each subscale, see Table 1. Reliability across age was

found to be "very good" for ages 1-4 and 12, and "excellent" for all other ages (Teicher

& Parigger, 2015). See Table 6.

Table 6

Test retest reliability by Type of Maltreatment of MACE subscale scores (n = 75)

Type of Maltreatment	Test-retest r	Confidence Interval
Emotional Neglect	0.625	{0.464–0.746}

(continued)

Type of Maltreatment	Test-retest r	Confidence Interval
Parental Nonverbal Emotional Abuse	0.826	{0.737-0.887}
Parental Physical Maltreatment	0.874	{0.808-0.919}
Parental Verbal Abuse	0.828	{0.740-0.888}
Peer Emotional Abuse	0.749	{0.629-0.834}
Peer Physical Bullying	0.834	{0.749-0.892}
Physical Neglect	0.643	{0.487-0.759}
Sexual Abuse	0.902	{0.848-0.937}
Witness Interparental Violence	0.819	{0.727-0.882}
Witnessing Violence to Siblings	0.741	{0.606-0.834}

Table 7

Test retest reliability of MACE severity scores across ages (n=75)

Recollected Ages	Test-retest r	Confidence Interval
1	0.606	{0.438-0.733}
2	0.584	{0.410-0.717}
3	0.726	{0.597-0.819}
4	0.752	{0.632-0.837}

Recollected Ages	Test-retest r	Confidence Interval
5	0.831	{0.744-0.891}
6	0.903	{0.849-0.938}
7	0.886	{0.824-0.927}
8	0.891	{0.832-0.930}
9	0.894	{0.837-0.932}
10	0.876	{0.809-0.920}
11	0.852	{0.774-0.904}
12	0.795	{0.692-0.866}
13	0.856	{0.780-0.907}
14	0.832	{0.745-0.891}
15	0.871	{0.802-0.917}
16	0.895	{0.838-0.933}
17	0.863	{0.790-0.911}
18	0.864	{0.792-0.912}

Validity

The developers of the MACE assessed convergent validity by comparing total MACE scores to participants' scores from the ACE and CTQ. The developers expected that the MACE would have strong convergent validity but that the ACE and CTQ scores would not account for more than 50% of the variance in MACE scores because the MACE includes more categories than either the ACE or CTQ. Teicher and Parigger (2015) found the MACE to have good correlations with the ACE ($r = 0.75$, CI = 0.677-0.731) and CTQ ($r = 0.74$, 95% CI = 0.697-0.780, p $<10^{-16}$), and the MACE was determined to have strong convergent validity.

The developers examined predictive validity by examining the ability of MACE scores to predict participants' scores on the Kellner Symptom Questionnaire, a popular measure used to rate psychiatric symptom severity in the domains of depression, anxiety, anger-hostility, and somatization (Teicher & Parigger, 2015). They also examined the predictive validity of MACE scores on other outcome measures, including limbic irritability as measured by the Limbic System Checklist-33, as well as the Adult Suicidal Ideation Questionnaire. The MACE was found to have strong predictive validity across all outcome measures.

In order to determine predictive validity in comparison with the ACE and CTQ, each assessment was examined in reference to outcome measures. Teicher and Parigger (2015) reported that "variance decomposition indicated that MACE Multiplicity scores accounted for, on average, 7.48 ± 3.53 (mean ± sd) of the variance in symptom ratings, whereas the ACE accounted for 3.60% ± 1.23%, a 2.07±0.55 fold difference across the seven scales" (p. 22). When compared with the CTQ, "variance decomposition indicated

that MACE Severity scores accounted for, on average, 7.64% ± 4.62% (mean ± sd) of the variance in symptom ratings, whereas the CTQ scores accounted for 3.83 ± 0.95%, a 2.00 ± 1.13 fold difference across the seven scales" (Teicher & Parigger, 2015, p. 23). These results indicate that the MACE has strong predictive validity on a variety of mental health and medical outcomes.

The construct validity of the MACE was assessed by examining cross-correlations between different types of maltreatment, and each category was found to have only modest correlations (mean $r = 0.320 \pm 0.106$) between each type of maltreatment. This is consistent with the fact that many types of abuse often occur together and are similar in nature, but the modest correlation supports the idea that the scales are sufficiently different from each other and each captures a unique category of maltreatment.

Depression Anxiety Stress Scale – 21 (DASS-21

The DASS was designed to measure emotional distress in three subcategories of depression (e.g., loss of self-esteem/incentives and depressed mood), anxiety (e.g., fear and anticipation of negative events), and stress (e.g., persistent state of over arousal and low frustration tolerance) (Lovibond & Lovibond, 1995). The original version of the DASS contained 42 questions, and a short version was created which contains 21 questions (Lovibond & Lovibond, 1995). The DAAS-21 contains seven items for each category, and is based on a four-point rating scale. To calculate scores comparable with the full version of the DASS, each seven-item scale is multiplied by two (Antony, Bieling, Cox, Enns, & Swinson, 1998; Oei, Sawang, Goh, & Mukhtar, 2013).

Reliability

The DASS-21 has been normed on clinical and community populations, and has

been found to be appropriate for both groups of adults over 18 years of age (Lovibond &

Lovibond, 1995). To examine the psychometric properties of the DASS-21, Antony et al.

(1998) administered the DASS full version and extracted the appropriate items for the

DASS-21 from the answers and analyzed the psychometric properties. The DASS was

administered to both a non-clinical population as well as a population that consisted of

individuals with a diagnosis of panic disorder, obsessive compulsive disorder, social

phobia, specific phobia, and major depressive disorder. Antony et al. (1998) found that

in the total population, clinical and non-clinical, Cronbach's alphas for the DASS-21

subscales were .94 for Depression, .87 for Anxiety, and .91 for Stress. These numbers

indicate strong reliability for the DASS-21. Other studies have examined the

psychometric properties of the DASS-21 across the most prominent ethnic groups in the

United States (Norton, 2007), as well as in Asian (Oei, Sawang, Goh, & Mukhtar, 2013)

and European countries (Scholten, Velten, Bieda, Zhang, & Margraf, 2017). These

researchers have found strong reliability, with Cronbach's alphas ranging from .78 to .90

across all scales (Norton, 2007; Oei, Sawang, Goh, & Mukhtar, 2013; Scholten, Velten,

Bieda, Zhang, & Margraf, 2017).

Validity

Antony et al. (1998) also examined concurrent validity with other measures of

depression and anxiety for the clinical population, and they found the DASS-21 to have

moderately high correlations with the Beck Depression Inventory (Beck, Ward,

Mendelsohn, Mock, & Erbaugh, 1961) and the Beck Anxiety Inventory (Beck, Epstein,

Brown, & Steer, 1988), which indicates good concurrent validity for the DASS-21. Antony et al. (1998) found that the 21 item version of the DASS is comparable to the 42 item version. Antony et al. (1998) note that in some situations, the DASS-21 may even be preferable to the full version because it has "a cleaner factor structure and smaller interfactor correlations" (p. 181). Other researchers have performed confirmatory factor analyses on the DASS-21 in Western, European, and Asian cultures, as well as with a population of older adults (Gomez, Summers, Summers, Wolf, & Summers, 2013) and found that the DASS-21 factor structure is valid across all groups (Gomez, Summers, Summers, Wolf, & Summers, 2013; Norton, 2007; Oei, Sawang, Goh, & Mukhtar, 2013; Scholten, Velten, Bieda, Zhang, & Margraf, 2017).

Procedure

Prior to data collection, the dissertation committee reviewed and approved the research proposal. Additionally, approval was obtained from Sam Houston State University's Institutional Review Board (IRB) (SHSU IRB #2017-12-37149 Approved: 3/21/2018 Expiration Date: 3/21/2019). Per IRB request, the subscale of Witness of Violence to Siblings was removed due to reporting issues that would arise if participants' siblings were still minors. As the intention of this study was to collect data about adults, this was not a problem to remove this subscale. Data were collected through a website designed for this study and included informed consent and demographic questionnaire, as well as the 52 MACE items, each with their respective age of exposure scale, and the DASS-21. The website was designed to collect responses and automatically add them to the database which was downloaded and converted to an SPSS database for analysis.

To recruit participants, an email announcement was sent to prospective participants with an explanation of the research, an invitation to participate in the study, and a link to the website. The announcement was also posted on social media sites in accordance with the convenience sampling process. All participants who completed the assessment were asked to share the information and website link with anyone they know that might be willing to also participate, in accordance with snowball sampling procedures.

Data Analysis

I used canonical correlation, using the statistical software package SPSS version 22 (IBM Corp., 2012) to investigate the research questions. The 9 subscales of the MACE, along with the total score, were used as predictor variables, and the total score for each subscale of the DASS-21 (depression, anxiety, and stress) was used as the outcome variables. All variables had scores in continuous format and therefore were appropriate for this type of analysis. All psychometric properties were assessed and data were checked to ensure complete responses and remove any incomplete answers. Statistical assumptions were checked, including normality, linearity, and homoscedasticity (Mertler & Vannatta, 2013) and Log 10 transformations were performed to move data closer to a normal curve. Canonical correlations were run to examine the relationship between the severity and multiplicity scores as well as individual subscales of the MACE and the outcome scores on the DASS-21. Canonical correlations were also used to examine the relationship of age of exposure on each subscale to the total scores on the DASS-21 and the degree to which the MACE subscales and total score can predict participants' scores on the DASS-21.

Canonical correlation analysis (CCA) is a multivariate technique that is best suited to answer research questions that investigate relationships between two variables, where there are multiple variables in each set (Sherry & Henson, 2005). CCA is designed to find the "simplest model by which the relationship between two sets of variables can be maximally explained" (Aydin, Selçuk, & Çakmak, 2018, p. 16). In this study, the MACE variate was made up of the independent variables, and the DASS-21 variate was comprised of the dependent variables. Researchers may describe one set of variables as predictor variables and the other as outcome variables, but CCA examines the correlation between both sets of variables, and the correlation is weighted based on the relationships between the variables within the sets, and between the sets (Sherry & Henson, 2005). CCA was chosen for this study because there were 9 subscales in the MACE variable, and 3 subscales in the DASS-21 variable. CCA limits the risk of Type 1 error which would be present if a number of multiple regression analyses were completed with the many variables in this study.

Summary

In this chapter I have described the methodology used in this study and presented my research design. Data collected from a community sample of adults willing to participate in the study were analyzed using correlation and multiple regression analysis to answer the research questions. The results of the data will be discussed in the following chapter.

CHAPTER IV

RESULTS

Four multivariate outliers were identified in the preliminary examination of the data via mahalanobis distance. Outliers with a probability less than .001 were removed. Most of the data were positively skewed, and therefore data were transformed with log10 transformations to all variables. After removing outliers, N=239. For sufficient power, a minimum of 10-15 participants are necessary for each variable (Tabachnick & Fidel, 2007). For this sample, although different analyses used different combinations of variables, the most used in any given analysis was 12, and the ratio was 20 participants for each of the 12 variables.

After IRB approval was obtained, the MACE, and the Depression, Anxiety, and Stress Scale (DASS-21) were administered to participants via an anonymous, online survey format. There were 211 females, 27 males, and one person who declined to identify their gender. The majority of participants were between 18 and 25 (152), followed by 36 to 50 years old (33), 26 to 35 (32), 51 to 65 (20), and 65 to 75 (2). The majority of participants were Caucasian (154), followed by Hispanic/Latino (36), African American (33), Multiracial (2), Asian (1), and various mixed ethnicities where participants chose more than one ethnicity category (Caucasian/Hispanic/Latino [6], Native American/Caucasian [3], African American/Multiracial [1], Asian/Caucasian [1], Caucasian/Multiracial [1], and Native American/Asian/African American/Caucasian [1]). The clinical population was defined as those who had received at least one mental health diagnosis in their lifetime, and 114 were considered to be a clinical population, while 125 were considered to be non-clinical. The reliability for the current sample was calculated,

and Crohnbach's α was more than sufficient for all categories (greater than .7). See Table
8 for reliability by subscale.

Table 8

Reliability by Subscale for Present Study

Variable	Cronbach's Alpha
DASS-21 Total	.927
MACE Multi	.922
MACE Sum	.907
Sexual Abuse	.812
Parental Verbal Abuse	.873
Parental Non-Verbal Emotional Abuse	.888
Parental Physical Maltreatment	.727
Witness Interparental Violence	.805
Peer Verbal Abuse	.724
Peer Physical Abuse	.794
Emotional Neglect	.929
Physical Neglect	.915

Research Question 1

A canonical correlation analysis was conducted to examine research question 1: What is the relationship of the individual categories of maltreatment measured by the MACE subscales (parental verbal abuse; parental non-verbal abuse; parental physical maltreatment; sexual abuse [familial or extra- familial]; witnessing interparental violence; peer verbal abuse and ostracism; peer physical bullying; emotional neglect; and physical neglect) to the severity of internalizing symptoms as measured by a total score for the DASS-21? Wilks's lambda and corresponding F-tests were used to evaluate the null hypothesis that canonical correlations coefficients for all functions are zero. The canonical correlation was significant, (Wilks's λ = .75, $F(27, 663.599)$ = 2.55, $p < .001$).

The analysis yielded one significant function, with squared canonical correlation (R^2) of 0.22. This correlation reflects the strength of the correlation between the independent canonical variate (i.e., subscales of Maltreatment and Abuse Chronology of Exposure Scale) and the dependent canonical variate (i.e., subscales of depression, anxiety, and stress) for each function. The Wilks's λ for the first canonical function represents the variance that is not explained by the full model, therefore, $1 - \lambda$ produces an effect size for the full model (Sherry & Henson, 2005). For the canonical function, the effect size (1 - .75) was .25, thus, the full model explained approximately 25%, of the variance shared between the variable sets.

Table 9 presents standardized canonical function coefficients (canonical weights), structure coefficients (correlation between each variable and its own variate, independent of other variables), squared structure coefficients (variance shared by variable and own variate), cross loadings (correlation between a variable and opposite variate), and the

canonical correlation for function 1. Given the difficulty of interpreting the canonical

weights alone (e.g., effects of multicollinearity and interpreting the contribution of each

variable in the presence of the other variables) (Thompson, 2000), the interpretation

primarily focused on the structural coefficients and cross loadings (Tabachnick & Fidel,

2007).

Using the conventional cutoff of .3 for the structural coefficients (Tabachnick &

Fidel, 2007), all subscales except parental physical maltreatment and physical neglect

made significant contributions to the independent variate set, which means that they

contributed to the overall variance accounted for by the MACE. The structural

coefficients allow researchers to identify the contribution that each variable makes to the

overall model independent of other variables. Peer verbal abuse (-.72) made the largest

contribution to the MACE variate, followed by parental non-verbal emotional abuse (-

.71), parental verbal abuse (-.67), peer physical abuse (-.65), sexual abuse (-.47),

emotional neglect (-.47), and witnessing interparental partner violence (-.41). Similarly,

the structural coefficients for the dependent variate indicate that stress (-.92) made the

greatest contribution to the DASS-21 variate, followed by anxiety (-.88) and depression (-

.82). The pair of canonical variates indicated that clients who have experienced less

maltreatment in the categories of peer verbal abuse, parental non-verbal emotional abuse,

parental verbal abuse, peer physical abuse, sexual abuse, emotional neglect, and

witnessing interparental partner violence also have lower scores of depression, anxiety,

and stress.

The cross loadings for the independent variate indicated that four MACE

subscales, parental verbal abuse (-.32), nonverbal emotional abuse (-.34), peer verbal

abuse (-.34), and peer physical abuse (-.31) are notably related to the dependent variate,

and the three dependent variables of stress (-.43), anxiety (-.42), and depression (-.39) are

notably related to the independent variate.

Table 9

Canonical Solution for MACE Subscales Predicting Scores on DASS-21 for Function 1

	Function 1			
Variable	Coef	*R*	r^2	Crs Ld
PeerVerbalAb	-.42	-.72	.52	-.34
Non VerbEmAb	-.41	-.71	.50	-.34
PVerbalAb	-.23	-.67	.45	-.32
PeerPhysAb	-.35	-.65	.42	-.31
SexAb	-.15	-.47	.22	-.22
EmotNeglect	.05	-.47	.22	-.22
WitnessIPV	-.13	-.41	.17	-.20
PhysNeglect	.08	-.26	.07	-.12
ParentPhys_M	.3	-.18	.03	-.09
% Variance		.29		
Stress	-.53	-.92	.85	-.43
Anxiety	-.38	-.88	.77	-.42

(continued)

	Function 1			
Depression	-.23	-.82	.67	-.39
% Variance		.76		
Canonical R		.47		

Note. Coef = Standardized Canoncial Correlation Coefficient; *R* = Structure Coefficients; *r²* = Squared Structure Coefficients; Crs Ld = Cross Loadings; % Variance = Percent of Within Set Variance; Canonical R = Canonical Correlation

Research Question 2

A canonical correlation analysis was conducted to examine research question 2: To what degree does the total SUM score and total Multiplicity (MULTI) score for each participant on the MACE predict their experience of internalizing symptoms as measured by the DASS-21? Wilks's lambda and corresponding F-tests were used to evaluate the null hypothesis that canonical correlations coefficients for all functions are zero. The canonical correlation was significant, (Wilks's λ = .84, $F(6,468)$ = 6.94, $p < .001$). The analysis yielded one significant function, with squared canonical correlation (R^2) of .15. This correlation reflects the strength of the correlation between the independent canonical variate (i.e., SUM and MULTI total scores of MACE) and the dependent canonical variate (i.e., subscales of depression, anxiety, and stress) for each function. The Wilks's λ for the first canonical function represents the variance that is not explained by the full model, therefore, 1– λ produces an effect size for the full model (Sherry & Henson, 2005). For the canonical function, the effect size (1 - .84) was .16, thus, the full model explained approximately 16%, of the variance shared between the variable sets.

The creators of the MACE wanted the MACE scores to be able to be compared to other leading measures of childhood maltreatment. To this end, the MACE has two type of total scores, a SUM score that is similar to the Childhood Trauma Questionnaire (Bernstein et al., 1994) and a multiplicity (MULTI) score that is similar to the Adverse Childhood Experiences (Felitti et al., 1998). The SUM score ranges from 0-100, and the Multiplicity score ranges from 0-10. The SUM score is based on individual subscale questions and reflects the severity of maltreatment experienced in each subscale, so the total score can range from 0-100 (each subscale ranges from 0-10). The MULTI score, on the other hand, reflects only the presence or absence of a type of maltreatment, indicated by a 0 or 1 for each subscale, with a total possible score of 10. In this study we examined the relationship of each type total score to internalizing symptoms as measured by the DASS-21.

Table 10 presents standardized canonical function coefficients (canonical weights), structure coefficients (correlation between each variable and their own variate, independent of other variables), squared structure coefficients (variance shared by variable and own variate), cross loadings (correlation between a variable and opposite variate), and the canonical correlation for function 1. As with the first canonical correlation, the interpretation primarily will focus on the structural coefficients and cross loadings.

Using the conventional cutoff of .3 for the structural coefficients (Tabachnick & Fidel, 2007), both the SUM and MULTI total scores made significant contributions to the independent variate set, which means that they contributed to the overall variance accounted for by the MACE. The SUM score made the largest contribution (-.99)

followed by the MULTI score (-.88). Similarly, the structural coefficients for the

dependent variate indicate that stress (-.93) made the greatest contribution to the DASS-

21 variate, followed by anxiety (-.88) and depression (-.75). The pair of canonical

variates indicates that clients who have experienced less maltreatment as measured both

by the SUM and Multiplicity scores also have lower scores of depression, anxiety, and

stress. The cross loadings for the independent variate indicated that the SUM score (-.39)

and MULTI score (-.35) are notably related to the dependent variate, and the three

dependent variables of stress (-.37), anxiety (-.35), and depression (-.29) are notably

related to the independent variate.

Table 10

Canonical Solution for MACE Total Scores Predicting Scores on DASS-21 for Function 1

Variable	Function 1			
	Coef	R	r^2	Crs Ld
SUM Total	-.77	-.99	.98	-.39
MULTI Total	-.27	-.88	.77	-.35
% Variance		.88		
Stress	-62	-.93	.86	-.37
Anxiety	-.44	-.88	.77	-.35
Depression	-.05	-.75	.56	-.29
% Variance		.73		

(continued)

	Function 1
Canonical R	.39

Note. Coef = Standardized Canoncial Correlation Coefficient; *R* = Structure Coefficients; *r²* = Squared Structure Coefficients; Crs Ld = Cross Loadings; % Variance = Percent of Within Set Variance; Canonical R = Canonical Correlation

Research Question 3

Three canonical correlation analyses were conducted to examine research question 3: To what degree does age of exposure predict participants' experience of internalizing symptoms as measured by the DASS-21? For every question, participants checked all ages that applied, and the responses were divided into three categories, early childhood (1-5 years), middle childhood (6-12 years), and late childhood (13-18 years). A canonical correlation was run for each age group category.

Early Childhood

A canonical correlation analysis was conducted with the MACE subscales for the early childhood category as predictor variables and total scores on the DASS-21 as outcome variables. The canonical correlation was not significant, (Wilks's λ = .85, $F(27,663.60) = 1.31$, $p = .134$). The analysis did not yield significant function, with squared canonical correlation (R^2) of .07 (See Table 11). As the model was not significant, the structural coefficients were not further considered.

Table 11

Canonical Solution for Early Childhood Predicting Scores on DASS-21 for Function 1

Variable	Function 1			
	Coef	*R*	*r²*	Crs Ld
PeerVerbalAb_EC	-.41	.14	.02	.04
NonVerbEmAb_EC	.22	.46	.21	.12
PVerbalAb_EC	.22	.55	.30	.15
PeerPhysAb_EC	.19	.30	.09	.08
SexAb_EC	-.21	.02	.00	.01
EmotNeglect_EC	.06	.67	.45	.18
WitnessIPV_EC	.04	.34	.12	.09
PhysNeglect_EC	.71	.82	.67	.22
ParentPhys_M_EC	.35	.42	.18	.11
% Variance		.23		
Stress	1.21	.96	.92	.26
Anxiety	-.35	.41	.17	.11
Depression	-.02	.48	.23	.13
% Variance		.44		
Canonical R		.27		

<div align="center">Function 1</div>

Note. Coef = Standardized Canoncial Correlation Coefficient; *R* = Structure Coefficients; *r²* = Squared Structure Coefficients; Crs Ld = Cross Loadings; % Variance = Percent of Within Set Variance; Canonical R = Canonical Correlation

Middle Childhood

The canonical correlation for the middle childhood scores was significant, (Wilks's λ = .77, $F(27,663.60)$ = 2.35, $p < .001$). The analysis yielded one significant function, with squared canonical correlation (R^2) of .19. This correlation reflects the strength of the correlation between the independent canonical variate (i.e., middle child subscale scores of MACE) and the dependent canonical variate (i.e., subscales of depression, anxiety, and stress) for each function. The Wilks's λ for the first canonical function represents the variance that is not explained by the full model, therefore, $1 - \lambda$ produces an effect size for the full model (Sherry & Henson, 2005). For the canonical function, the effect size (1 - .77) was .23, thus, the full model explained approximately 23%, of the variance shared between the variable sets.

Table 12 presents standardized canonical function coefficients (canonical weights), structure coefficients (correlation between each variable and their own variate, independent of other variables), squared structure coefficients (variance shared by variable and own variate), cross loadings (correlation between a variable and opposite variate), and the canonical correlation for function 1. The interpretation focused on the structural coefficients and cross loadings (Tabachnick & Fidel, 2007).

Using the conventional cutoff of .3 for the structural coefficients (Tabachnick & Fidel, 2007), all subscales except parental physical maltreatment made significant

contributions to the model, which means that they contributed to the overall variance accounted for by the MACE. The structural coefficients allow researchers to identify the contribution that each variable makes to the overall model independent of other variables. Nonverbal emotional abuse made the largest contribution (-.76) followed by peer verbal abuse (-.71), emotional neglect (-.68), parental verbal abuse (-.59), witnessing interparental partner violence (-.53), physical neglect (-.51), peer physical abuse (-.49), and sexual abuse (-.30). Similarly, the structural coefficients for the dependent variate indicate that stress (-.91) made the greatest contribution to the DASS-21 variate, followed by anxiety (-.90) and depression (-.74). The pair of canonical variates indicates that clients who have experienced less maltreatment during middle childhood (ages 6-12) in the categories of nonverbal emotional abuse, peer verbal abuse, emotional neglect, parental verbal abuse, witnessing interparental partner violence, physical neglect, peer physical abuse, and sexual abuse also have lower scores of depression, anxiety, and stress. The cross loadings for the independent variate indicated nonverbal emotional abuse (-.34) peer verbal abuse (-.31), and emotional neglect (-.30) are notably related to the dependent variate, and the three dependent variables of stress (-.40), anxiety (-.40), and depression (-.33) are notably related to the independent variate.

Table 12

Canonical Solution for Middle Childhood Predicting Scores on DASS-21 for Function 1

	Function 1			
Variable	Coef	*R*	*r²*	Crs Ld
PeerVerbalAb_MC	-.38	-.71	.50	-.31
NonVerbEmAb_MC	-.43	-.76	.58	-.34
PVerbalAb_MC	-.07	-.56	.31	-.26
PeerPhysAb_MC	-.27	-.49	.24	-.21
SexAb_MC	-.06	-.30	.09	-.13
EmotNeglect_MC	-.14	-.68	.46	-.30
WitnessIPV_MC	-.20	-.53	.28	-.23
PhysNeglect_MC	-.08	-.51	.26	-.23
ParentPhys_M_MC	.33	-.08	.01	-.04
% Variance		.30		
Stress	-.55	-.91	.83	-.40
Anxiety	-.52	-.90	.81	-.40
Depression	-.03	-.74	.55	-.33
% Variance		.73		

	Function 1
Canonical R	.44

Note. Coef = Standardized Canoncial Correlation Coefficient; *R* = Structure Coefficients; *r²* = Squared Structure Coefficients; Crs Ld = Cross Loadings; % Variance = Percent of Within Set Variance; Canonical R = Canonical Correlation

Late Childhood

The canonical correlation for the late childhood scores was significant, (Wilks's λ = .83, $F(27,663.60)$ = 1.65, p =.021). The analysis yielded one significant function, with squared canonical correlation (R^2) of .15. This correlation reflects the strength of the correlation between the independent canonical variate (i.e., late childhood subscale scores of Maltreatment and Abuse Chronology of Exposure Scale) and the dependent canonical variate (i.e., subscales of depression, anxiety, and stress) for each function. The Wilks's λ for the first canonical function represents the variance that is not explained by the full model, therefore, 1– λ produces an effect size for the full model (Sherry & Henson, 2005). For the canonical function, the effect size (1 - .83) was .17, thus, the full model explained approximately 17%, of the variance shared between the variable sets.

Table 13 presents standardized canonical function coefficients (canonical weights), structure coefficients (correlation between each variable and their own variate, independent of other variables), squared structure coefficients (variance shared by variable and own variate), cross loadings (correlation between a variable and opposite variate), and the canonical correlation for function 1. The interpretation focused on the structural coefficients and cross loadings (Tabachnick & Fidel, 2007).   Using the conventional cutoff of .3 for the structural coefficients (Tabachnick & Fidel, 2007), all

subscales made significant contributions to the model, which means that they contributed to the overall variance accounted for by the MACE. The structural coefficients allow researchers to identify the contribution that each variable makes to the overall model independent of other variables. Nonverbal emotional abuse made the largest contribution (-.80) followed by emotional neglect (-.71), parental verbal abuse (-.68), peer verbal abuse (-.66), peer physical abuse (-.66), physical neglect (-.53), parental physical maltreatment (-.44), witnessing interparental partner violence (-.38), and sexual abuse (-.37). Similarly, the structural coefficients for the dependent variate indicate that stress (-.95) made the greatest contribution to the DASS-21 variate, followed by anxiety (-.84) and depression (-.72). The pair of canonical variates indicates that clients who have experienced less maltreatment during late childhood (ages 13-18) in all categories, also have lower scores of depression, anxiety, and stress. The cross loadings for the independent variate indicated nonverbal emotional abuse (-.31) was notably related to the dependent variate, and two of the dependent variables of stress (-.37) and anxiety (-.33) were notably related to the independent variate. The following chapter will discuss these results and implications.

Table 13

Canonical Solution for Late Childhood Predicting Scores on DASS-21 for Function 1

	Function 1			
Variable	Coef	R	r^2	Crs Ld
PeerVerbalAb_LC	.16	-.67	.45	-.25

<div align="right">(continued)</div>

		Function 1		
NonVerbEmAb_LC	-.44	-.80	.64	-.31
PVerbalAb_LC	-.07	-.68	.46	-.26
PeerPhysAb_LC	-.60	-.66	.44	-.25
SexAb_LC	-.10	-.37	.14	-.15
EmotNeglect_LC	-.20	-.71	.50	-.28
WitnessIPV_LC	-.15	-.38	.14	-.15
PhysNeglect_LC	-.12	-.53	.28	-.21
ParentPhys_M_LC	-.05	-.44	.19	-.17
% Variance		.16		
Stress	-.70	-.96	.92	-.37
Anxiety	-.37	-.84	.71	-.33
Depression	-.03	-.72	.52	-.28
% Variance		-.84		
Canonical R		.39		

Note. Coef = Standardized Canoncial Correlation Coefficient; *R* = Structure Coefficients; *r²* = Squared Structure Coefficients; Crs Ld = Cross Loadings; % Variance = Percent of Within Set Variance; Canonical R = Canonical Correlation

CHAPTER V

DISCUSSION

Child maltreatment has been connected with a variety of mental and physical

health conditions, including anxiety, depression, and other internalizing symptoms (Khan

et al., 2015; Marwaha et al., 2016; Pietrek, Elbert, Weierstall, Muller, & Rockstroh,

2013). Child abuse and maltreatment have also been described as the most "preventable

cause of psychopathology accounting for about 45% of the population attributable risk

for childhood onset psychiatric disorders" (Teicher & Samson, 2016, p. 241). As such,

this important issue has great bearing on mental health and work with clients in

counseling. All types of childhood abuse and neglect have been connected to

internalizing symptoms, things like anxiety, depression, and suicidal ideation, but

emotional abuse seems to be more commonly associated with internalizing symptoms,

rather than externalizing symptoms such as anger outbursts (Harvey et al., 2012;

Marshall, 2012; Paul & Eckenrode, 2015; Spinazzola et al., 2014; Wright, Crawford, &

Del Castillo, 2009). While the effects of maltreatment can be damaging regardless of

when it was experienced, there is growing evidence that the developmental timing of

abuse or neglect can have specific consequences later in life (Dunn et al., 2013; Ogle,

Rubin, & Seigler, 2013).

Complex Post Traumatic Stress Disorder (CPTSD) is a diagnosis that is being

included in the ICD-11 and relates to disturbances in self organization: (a) affect

dysregulation, (b) negative self-concept, and (c) disturbed relationships (Hyland et al.,

2016). Specifically, CPTSD is thought to develop from childhood maltreatment that

occurs in interpersonal relationships, most often with primary caregivers (Hyland et al.,

2016). This study was designed to investigate this important topic and examine a new instrument of childhood maltreatment, the Maltreatment and Abuse Chronology of Exposure Scale (MACE), and to determine if it is an effective predictor of internalizing symptoms in adulthood. The study is based on the following assumptions: (a) childhood abuse, especially emotional abuse factors, are connected to internalizing symptoms; and (b) the MACE accurately captures experiences of these types of maltreatment. If these assumptions are accurate, then the MACE should be consistently able to predict internalizing symptoms by identifying those who experienced high levels of childhood maltreatment, and therefore may be more prone to internalizing symptoms.

Addition to the Literature

This current study adds to the literature in a few important ways. First of all, the findings from this study support the validity of the MACE and its ability to accurately detect 10 types of childhood maltreatment, and its effectiveness at predicting internalizing symptoms in adulthood based on childhood experiences. Secondly, the results of this study support the effectiveness of the MACE in capturing psychological maltreatment, both abuse and neglect, which has been difficult to capture with previous instruments in such a comprehensive way. By including categories for verbal abuse from parents and peers, non-verbal emotional abuse from parents and peers, witness of interparental violence, and emotional neglect, the MACE has gone farther than any of its predecessors in capturing psychological maltreatment. This ability to accurately capture psychological maltreatment is important because psychological abuse has been considered to be "among the most pervasive and destructive forms of childhood maltreatment" (Harvey et al., 2012, p. 238). With such an effective instrument that also

captures information about the timing that specific types of maltreatment occurred, the field of childhood maltreatment can move forward in a more unified way. Having one comprehensive instrument that can be used in many types of study designs allows researchers to speak more of a "common language" and combine their findings to better capture the effects of childhood maltreatment.

At the present time, the MACE has been used in many studies that involve neuroimaging and examine the effects of early childhood trauma on brain development and other gene and environment interactions (i.e. Augsburger, Dohrmann, Schauer, & Elbert, 2017; Dudeck et al., 2016; Hecker, Radtke, Hermenau, Papassotiropoulous & Elbert, 2016; Pechtel et al., 2014; Radtke et al., 2015). Additionally the MACE has been examined in terms of predicting psychiatric symptoms and symptoms of PTSD in adulthood, most often with participants in inpatient treatments (Schalinski et al., 2016). In an extensive search of the literature, to date I was only able to find one study in a counseling journal (Jaye Capretto, 2017). This current study adds significantly to the use of the MACE in clinical settings and in counseling research, as well as with internalizing symptoms that go beyond suicide ideation or attempts.

Finally, the results of this current study support this claim about the destructive nature of psychological abuse as evidenced by the strong relationship between all forms of emotional abuse and neglect to the experience of internalizing symptoms. The fact that in all significant analyses the internalizing symptom of Stress was most strongly related to psychological abuse, followed by anxiety and depression, supports the idea that the effects of psychological abuse and neglect from childhood may lead to outcomes in adulthood that may not fit into other diagnostic categories such as anxiety or depression.

This is consistent with the idea that psychological abuse is a critical factor in the development of Complex PTSD later in life. This current study also leads to many more questions that can be investigated in future research, as is discussed later in this section.

Discussion of Results and Implications for Counseling

In this study, I sought to answer the following research questions:

1) What is the relationship of the individual categories of maltreatment measured by the MACE (parental verbal abuse; parental non-verbal abuse; parental physical maltreatment; sexual abuse (familial or extra-familial); witnessing interparental violence; witnessing violence to siblings; peer verbal abuse and ostracism; peer physical bullying; emotional neglect; and physical neglect) to severity of internalizing symptoms as measured by a total score for the DASS-21?

2) To what degree does the total score for each participant on the MACE predict their experience of internalizing symptoms as measured by the DASS-21?

3) To what degree does age of exposure predict participants' experience of internalizing symptoms as measured by the DASS-21?

Research Question 1

For the first research question, there was a statistically significant correlation found between the MACE variate and the DASS-21 variate. The small to medium effect size indicated that the full model explained approximately 25% of the variance shared between the variate sets. The top three categories that accounted for variance within the MACE set were emotional and psychological abuse categories (Peer verbal abuse, Parental non-verbal emotional abuse, and Parental verbal abuse). In order of strength of contribution, Peer Physical Abuse, Sexual Abuse, Emotional Neglect, and Witnessing

Interparental Violence also accounted for variance within the MACE variate. Within the

DASS-21 variate, the category of Stress made the strongest contribution to the variance

within that set, followed by Anxiety and Depression. In order to examine the

relationships between the MACE and the DASS-21, it is important to consider the

subscales that are significantly related to the other set, not just its own set. The MACE

subscales for emotional abuse (Parental verbal abuse, Parental non-verbal emotional

abuse, and Peer verbal abuse), along with Peer physical abuse, were significantly related

to the DASS-21 set (Stress, Anxiety, and Depression).

Additionally, while all three variables in the DASS-21 set were significantly

related to the MACE set, the top category was Stress, followed by Anxiety, and

Depression. This pattern of results indicates that many of the internalizing symptoms that

may bring people into counseling may not meet diagnostic criteria, but may still be

causing significant distress and may be related to childhood maltreatment. Furthermore,

overall, these results mean that the emotional abuse subscales accounted for the most

amount of variance within the MACE set on its own, as well as in relationship to

internalizing symptoms (Stress, Anxiety, and Depression). These results are consistent

with the literature that asserts that psychological abuse is the "core form of abuse"

(Harvey et al., 2012) and accounts for even more effects of childhood maltreatment than

other types of abuse, even when other types of abuse are present.

The idea that emotional abuse may be the core of all types of abuse is important

because clients often minimize emotional abuse and say "they never actually hit me", but

counselors can educate clients about the impact emotional abuse may have on their daily

functioning. It is important to help clients recognize that their symptoms that they may

think are seemingly unrelated to childhood issues (i.e., trouble focusing, being easily agitated) may actually be leftovers of coping strategies that they used in childhood but may not be serving them well now. The idea of emotional abuse being the core form of abuse also applies to clients who may not have been emotionally abused in childhood because most people will often minimize the impact of emotional abuse in current adult relationships. However, the results of this study, along with previous studies, indicate that emotional abuse may be just as damaging as physical or sexual abuse even when experienced in adulthood.

The fact that the category of Stress was the most strongly related to psychological abuse categories indicates that there is another set of symptoms that is not being captured by the diagnoses of anxiety and depression. Counselors may need to look further if clients do not appear to fit in current diagnostic categories but are still reporting distress in their current functioning. Furthermore, if clients have experienced emotional abuse, it follows logically that they may be stunted in their emotional development. It is possible that the category of "stress" symptoms may actually be symptoms of anxiety or depression that are not accurately recognized by clients if their emotional awareness is limited. Just as depression may manifest in more physical symptoms rather than emotional symptoms in some cultures, the "stress" symptoms may be unrecognized symptoms. If these symptoms were recognized and addressed, they could further improve treatment focus and treatment planning. If the symptoms of Stress are not seen as connected to each other, and to a possible common cause (childhood maltreatment), then they may be missed and may not be a focus of treatment. Finally, if clients experienced emotional abuse in childhood, the chances that they experience emotional abuse later in

life are quite high, and it is important for counselors to help clients evaluate their current

relationships and see if any childhood patterns are being repeated.

Research Question 2

The second research question asked: To what degree does the total SUM score

and total Multiplicity (MULTI) score for each participant on the MACE predict their

experience of internalizing symptoms as measured by the DASS-21?

The MACE was created to be as useful, or more useful, than other leading

measures of childhood maltreatment. As a result, the MACE has two type of total scores,

a SUM score that is similar to the scoring of the Childhood Trauma Questionnaire

(Bernstein et al., 1994) and a multiplicity (MULTI) score that is similar to the scoring of

the Adverse Childhood Experiences (Felitti et al., 1998). The SUM score ranges from 0-

100 and is comprised of 10 subscales, similar to the Childhood Trauma Questionnaire

(Bernstein et al., 1994), and the Multiplicity score ranges from 0-10, with either a 0 or 1

to indicate the presence of a category of maltreatment, similar to the Adverse Childhood

Experiences Scale (Felitti et al., 1998). While both scores were expected to be predictors

of internalizing symptoms, this research question was focused on determining whether

the two score types would be equal predictors, or if one type of score would better

capture and reflect the severity of the experiences of maltreatment that may be related to

internalizing symptoms.

There was a statistically significant correlation between both the MACE set and

the DASS-21 set. The effect size of 16% indicates a small effect size. Both the SUM and

MULTI scores made significant contributions to the MACE set, but the SUM score was

the largest contributor. Both of the MACE total scores were significantly related to the

DASS-21 set, and as seen above, the SUM score was more strongly related than the MULTI score. This indicates that the SUM score may capture a greater range of maltreatment and may be a slightly better predictor of internalizing symptoms, although both scores were effective predictors of symptoms as measured by the DASS-21.

This difference between the SUM score and the MULTI score can be used in counseling to help clients recognize the severity of their abuse, especially if they are struggling with minimizing their experiences. The MULTI score only shows presence or absence of the subscale of abuse, but the SUM score will show a range from 0-10 for each type of maltreatment. If clients are prone to say "it wasn't that bad" but they see that they scored 10 out of 10 in some or all emotional abuse categories, this provides information that can be processed in counseling and provides opportunities to educate them about emotional abuse and its possible effects in their life.

Similar to the previous research question, the subscale of Stress made the largest contribution to the DASS-21 set. The fact that both SUM and MULTI scores were effective predictors of internalizing symptoms further underscores the importance of considering childhood factors when processing daily stressors that clients may not connect to early experiences. The recurring pattern of Stress being the most strongly related to the MACE variables, followed by Anxiety, and then Depression is intriguing because participants in this study reported past diagnoses of depression more than any other diagnosis, such as anxiety, or PTSD. This further suggests that the symptoms being captured by Stress may fall into another diagnosis. Regardless of the diagnosis that may best fit the symptoms of Stress, the presence of Stress symptoms (i.e., chronic, non-specific arousal, over-reactive, and impatient) should be an indicator for counselors to

further examine a client's childhood experiences and see what bearing they may have on their current struggles.

Research Question 3

Research question 3 asked: To what degree does age of exposure predict participants' experience of internalizing symptoms as measured by the DASS-21?

Early Childhood

The analysis was not significant for maltreatment that may have occurred in early childhood (ages 1-5). This could be related to the fact that many people do not have much memory recall in their earliest childhood years and may rely on what is told to them from others. If caregivers are the most common abusers, it follows logically that the caregivers may not tell individuals about abuse that took place before they were able to remember.

Middle Childhood

There was a statistically significant correlation found between the MACE variate for middle childhood and the DASS-21 variate. The small to medium effect size indicated that the full model explained approximately 23% of the variance shared between the variate sets. Within the MACE variate, the top categories that accounted for variance within the MACE variate were emotional and psychological abuse categories (Parental non-verbal emotional abuse, Peer verbal abuse, Emotional neglect, and Parental verbal abuse). Additionally, in order of strength of relationship, Witnessing Interparental Violence, Physical Neglect, Peer Physical Abuse, and Sexual Abuse significantly contributed to the variance within the MACE set. This suggests that all types of childhood maltreatment except Parental Physical Maltreatment are significant in middle childhood. Harvey et al. (2012) suggested that psychological abuse may be the "core

destructive force" of all types of childhood maltreatment (p. 231). This means that although statements about causation cannot be made from correlational analyses such as those conducted in this study, it is important to note that all of these areas register as significant contributors to the destructive force of childhood maltreatment that may lead to many different outcomes in adulthood.

Within the DASS-21 variate, the category of Stress made the strongest contribution to the variance within that set, followed by Anxiety and Depression. Between the sets, the MACE subscales that are significantly related to the DASS-21 set, the categories were the three emotional abuse categories (Parental non-verbal emotional abuse, Peer verbal abuse, and Emotional neglect). Additionally, while all three variables in the DASS-21 set were significantly related to the MACE set, the most strongly associated category was tied between Stress and Anxiety, followed by Depression. These results follow the patterns in previous sections and continue to provide support for the overwhelming importance of emotional and psychological abuse factors on internalizing symptoms, especially those that may fall below diagnostic thresholds (i.e., Stress).

As in the previous analyses, the subscales of emotional abuse are the most strongly related to internalizing symptoms. This is significant in middle childhood because children are like emotional sponges, absorbing the emotions of those around them, especially important figures in their lives. If they are consistently receiving nonverbal emotional abuse from parents and peers that communicates to them that that they are unlovable or unwanted, the results of this study indicate that they are likely to turn those feelings inward to internalizing symptoms. This information is important for counselors who work with children and may suggest that it would be important to treat

the entire family system rather than only treating a child who presents with anxiety or general "adjustment issues". Furthermore, the fact that the category of Stress was most strongly related to emotional abuse scales, even more than Anxiety and Depression, may suggest that quieter children may be missed in behavior assessments or support services, but they may be just as in need of these services as their peers who are acting out in more visible ways.

Late Childhood

There was a statistically significant correlation found between the MACE variate for late childhood and the DASS-21 variate. The small to medium effect size indicated that the full model explained approximately 17% of the variance shared between the variate sets. Within the MACE variate, the top categories that accounted for variance within the MACE variate were Nonverbal emotional abuse, Emotional neglect, Parental verbal abuse, and Peer verbal and Physical abuse. Additionally, in order of strength of contribution, Physical Neglect, Parental Physical Maltreatment, Witnessing Interparental Violence, and Sexual Abuse all significantly contributed to the variance within the MACE set. As mentioned previously, this means that all areas of childhood maltreatment captured by the MACE in this study appear to contribute to the destructive power that childhood maltreatment has on individuals (Harvey et al., 2012).

Within the DASS-21 variate, the category of Stress made the strongest contribution to the variance within that set, followed by Anxiety and Depression. The only MACE subscale that was significantly related to the DASS-21 set was Parental non-verbal emotional abuse. Additionally, in this case, only two of the three variables in the

DASS-21 set were significantly related to the MACE set, the strongest associated category was Stress followed by Anxiety.

While multiple categories of emotional abuse contributed significantly to the variance within the MACE set, only nonverbal emotional abuse from parents that occurred in late childhood was strongly related to internalizing symptoms. This would suggest that although peers are of increasing importance in adolescence, it is abuse from parents that may have a more significant impact on teenagers' mental health. This is important as many interventions that target anxious and depressed teenagers focus on bullying from peers, which is certainly important, but counselors must also take into account the possibility of abuse from parents. Furthermore, it is the *nonverbal* emotional abuse, which means that teens may not be able to give examples of things their parents say that lead them to feel unloved, unwanted, and unimportant. However, the effects are very real and it is important for counselors to educate teenagers, as well as adult clients, on nonverbal abuse and its potential effects. It is also possible that teenagers are more sensitive to nonverbal messages, as teenagers are likely to interpret everything in terms of themselves, even if a parent's anger or frustration may have nothing to do with them. In these cases, it would be important for counselors to help teenagers learn how to effectively assess situations and determine if the frustration is directed at them or not, and how to cope with their resulting distress from absorbing these nonverbal emotions.

This age group deviated slightly from the pattern of Stress being the most strongly related to emotional abuse in that Stress and Anxiety were significantly related to emotional abuse, but Depression was not. Considering that depression was the most reported mental health diagnosis among the sample (19%), it suggests that there is a

larger category of internalizing symptoms that may be related to emotional abuse in childhood, but it may go unnoticed if it is not captured in a diagnostic category. Children and teenagers often develop coping patterns to deal with abuse that they experience, but they need assistance as they transition to adulthood to develop different ways of coping that encourage healthy relationships, rather than keeping them stuck in their old patterns and contributing to unhealthy relationships in adulthood.

Summary

The three research questions looked at different aspects of the MACE to examine the subscales across the lifespan, as well as the total score types, both SUM and Multiplicity, as well as each subscale across three age categories (early, middle, and late childhood). With the exception of the early childhood analysis, all were statistically significant. In all cases, the strongest predictors both within the individual variate of the MACE, and between the MACE and DASS-21, were emotional abuse subscales. This provides strong support for the connection between emotional abuse and internalizing symptoms.

Parental nonverbal emotional abuse scored high in almost all analyses and include things like a parent being "very difficult to please", having "no time or interest" in their child, or the child feeling that they "had to shoulder adult responsibilities" (Teicher & Parigger, 2015, p. 13). In many cases, Parental verbal abuse was also a strong predictor of internalizing symptoms, with examples such as "swore at you, called you names, insulted you", "threatened to abandon you", "said hurtful things that made you feel humiliated", or "acted in a way that made you feel you might be physically hurt more than a few times a year" (Teicher & Parigger, 2015, p. 13). Interestingly, parental physical maltreatment

did not contribute significantly to the variance within the MACE set or between the MACE and DASS-21 in any of these analyses. This suggests that the fear of being physically hurt has far more power than the physical injury itself. Even witnessing domestic violence made a stronger contribution to the variance within the MACE set for a few analyses than experiencing physical abuse directly. The same is true for sexual abuse scores, as they did not contribute significantly to internalizing symptoms in any analysis.

Psychological Maltreatment

For many years, researchers have argued that psychological maltreatment is a "stand-alone form of maltreatment and the core of all forms of childhood maltreatment" (Harvey et al., 2012, p. 238), and inherent in all forms of child maltreatment and that it is the "destructive power of all forms of child abuse and neglect" (Hart & Brassard, 1987, p. 161). Psychological abuse is considered anything that conveys "to the child that they are unwanted or worthless" (Paul & Eckenrode, 2015, p. 2) and this can have severe effects on self-esteem that can lead to internalizing symptoms of anxiety and depression (Spinazzola et al., 2014, Wright, Crawford, & Del Castillo, 2009). The results from this current study are consistent with these assertions and indicate that emotional abuse needs to be a center focus when considering childhood maltreatment.

In counseling, it will be important to help clients stop minimizing emotional abuse, and this may start with actually being able to define emotional abuse. Counselors may use assessments like the MACE to help clients identify areas that they may not have considered to be abuse. Additionally, measures like the DASS-21 could help to identify other internalizing symptoms that may not look like typical anxiety or depression but

may still be related to childhood maltreatment. It will also be important to help clients examine the effects of emotional abuse on their current functioning, and develop effective coping skills to deal with these effects. If their internalizing symptoms are not connected to their possible source of emotional abuse, valuable time may be lost in treatment trying to change behavior patterns or cognitive distortions without realizing that they may be stuck in earlier messages of self-worth received from parents.

However, due to differing definitions, many instruments have not yet effectively captured a wide range of emotional maltreatment. It appears that the MACE has an excellent operational definition of emotional abuse, both verbal and non-verbal from parents and peers, and this is reflected in the results discussed in this study.

Internalizing Symptoms

In all significant analyses, the internalizing symptoms captured in the category of Stress in the DASS-21 were the most strongly related to the experiences of childhood maltreatment, especially emotional maltreatment. The DASS-21 defined Stress as levels of "chronic, non-specific arousal, difficulty relaxing, nervous arousal, and being easily upset or agitated, irritable, over-reactive and impatient" (Lovibond & Lovibond, 1995, p. 1). With the exception of one case where Stress and Anxiety were equal in strength, Anxiety followed behind Stress in the strength of relationship. This suggests that emotional abuse may contribute more to the general internalizing symptoms that may not meet criteria for a diagnosis, and therefore may continue to pass under the radar of mental health professionals, and often of the clients themselves.

However, these results are consistent with the concept of complex trauma, and the fact that symptoms of complex trauma include "affect and impulse regulation, self-

perception, somatization, attachment and interpersonal relations, attention, and challenges with systems of meaning" (Kisiel et al. 2014, p. 1). Many of these things may not meet criteria for a diagnosis of Anxiety or Depression, but they cause impairment for individuals nonetheless. The diagnosis of CPTSD adds six symptoms to the traditional diagnosis of PTSD that are related to a disturbance in self-organization, "which may result from sustained, repeated, and multiple forms of traumatic exposures" (Hyland et al., 2016, p. 2). These symptoms are divided into three categories: affective dysregulation, negative self-concept, and disturbed relationships (Hyland et al., 2016). It is possible that issues with these additional features of CPTSD may be captured in the category of Stress in the DASS-21. If this is so, the results of this study support both the validity and efficacy of the MACE and the diagnosis of CPTSD.

Furthermore, in a study of the diagnosis of CPTSD (Palic et al., 2016), they found that many who experienced prolonged interpersonal trauma displayed primarily "anxiety symptoms" and only endorsed the symptoms of affect dysregulation and "more pronounced interpersonal problems (i.e. guilt, feeling different, and avoiding others)" (Palic et al., 2016, p. 696). This is consistent with the results that Anxiety was the strongest related to childhood maltreatment, especially emotional abuse, behind the category of Stress. Although many other symptoms of CPTSD may not be present, these anxiety symptoms are still outcomes of prolonged interpersonal trauma, according to Palic et al. (2016), and are consistent with the results of this current study, which strengthens support for the need for counselors to assess for childhood maltreatment when dealing with clients whose symptoms may not appear to be connected to childhood at first glance.

Based on the results of this current study, counselors may need to look deeper beyond diagnosis of anxiety and depression. Many counselors may assign a diagnostic label but then do not look further for other possible causes of the symptoms. This may lead many counselors to miss things that could indicate that a diagnosis of CPTSD may better explain a client's symptoms. Experiences of emotional abuse and neglect may also decrease a client's ability to cope with present stressors. It is possible that clients may be struggling to recover from a trauma experienced in adulthood, but they may get stuck if they do not examine earlier messages they may have received from parents about their self-worth or their ability to cope with difficult things. It is important for counselors to take thorough histories, and thoroughly assess for emotional abuse, even if clients say they have not been abused. The results from this current study suggest that counselors may be treating more cases of childhood maltreatment than they realize, and adjusting their case conceptualization and treatment strategies accordingly may significantly improve treatment outcomes.

Recommendations for Future Research

In this study, literature has been examined about childhood maltreatment, internalizing symptoms, and neurological and behavioral consequences of childhood maltreatment experienced across the lifespan. Based on the results of this study, there are several recommendations for future research.

The first recommendation is to conduct further research studies focusing on a more diverse sample. The sample of participants from this study contained only 1% male participants. Additionally, the majority of participants were Caucasian (64%) and the

majority were between 18 and 25 years of age (63%). It is important to have a more representative sample in order to increase confidence in the generalizability of the results.

With the support for symptoms of CPTSD being related to emotional and psychological childhood maltreatment, the next logical step would be to administer the MACE and a valid and reliable assessment of CPTSD to further investigate if the MACE accurately captures experiences that may be involved in the creation of CPTSD. Additionally, other, more detailed measures of internalizing symptoms could be used along with the MACE. The MACE has so far been used to assess for symptoms of PTSD and dissociation, but the added features of CPTSD are important to capture, and it seems that the MACE may have done this in the current study (Ohashi et al., 2017; Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014; Schalinski & Teicher, 2015).

It is also important to further investigate ages of exposure and their connection to the development of internalizing symptoms. The MACE gathers data about the age of the child at the time each type of abuse occurred, which allows research to assess for sensitive periods of development during which abuse may have occurred, as well as gathering information about exposure levels that changed across child development (Dunn et al., 2013; Teicher & Parigger, 2015). In this current study, the age groups were divided into early, middle, and late childhood. It will be important to see if there is a difference in relationships when years of exposure are considered individually rather than in groups. In future research, it will also be important to investigate whether or not participants know of any abuse in their early childhood years, or if they simply cannot remember and have not been told about their childhood by caregivers.

Additionally, there may be differences in outcomes if a participant experienced abuse throughout their lifespan rather than only in one small section of the lifespan, with no further abuse. This information can help inform research about whether the cumulative risk hypothesis or type and timing of maltreatment has a greater effect in adulthood (Andersen et al., 2008; Chartier, Walker, & Naimark, 2007). It is possible that the best explanation of the connection between adverse childhood experiences and negative outcomes is not merely a product of the cumulative stress resulting from increased exposure but rather a product of the specific timing that the adverse experience occurred, and the MACE seems to be an appropriate tool for further investigating these possible questions.

Finally, it will be important to evaluate the use of the MACE in counseling settings, and see how it can inform the counseling relationship and progress. This can be done through qualitative studies as well as quantitative, gathering information from both the clients and the counselors about their view of the MACE and its usefulness in counseling.

Conclusion

The purpose of this study was to examine the predictive validity of the Maltreatment and Abuse Chronology of Exposure (MACE) scale on the experience of internalizing symptoms of depression and anxiety, as measured by the Depression Anxiety Stress Scale 21 (DASS-21) (Lovibond & Lovibond, 1995). After a literature review was completed, data were collected and analyzed. While instances of physical and sexual abuse can be captured with specific and detailed questions, previous measurements have not been able to capture psychological abuse as thoroughly as other

types of maltreatment. However, it appears that the MACE captured the construct of

psychological abuse as evidenced by the fact that it was shown to be significantly related

to outcomes of internalizing symptoms, especially in the categories of emotional abuse

(Parental non-verbal emotional abuse, Parental verbal emotional abuse, Peer Verbal

Abuse, and Emotional Neglect). These categories that captured emotional abuse

consistently ranked as the most strongly related to internalizing symptoms, and of

internalizing symptoms the Stress category was most strongly related to childhood

maltreatment. This suggests that the MACE accurately captures emotional abuse, perhaps

better than the instruments that have come before it, and that it may be capturing

important pieces of the puzzle that may lead to Complex Post-Traumatic Stress

symptoms later in life. The MACE appears to be as useful as the Childhood Trauma

Questionnaire (Bernstein et al., 1994) and the Adverse Childhood Experiences scale

(Felitti et al., 1998) with its SUM and MULTI total scores, but it also provides

information about ages of exposure, like the Early Trauma Inventory (Bremner,

Vermetten, & Mazure, 2000).

  The results of this study provide compelling support for the role of emotional

abuse in the development of internalizing symptoms. Further research on emotional

maltreatment is warranted to provide support for the diagnosis of CPTSD and to

investigate the methods by which emotional maltreatment actually contributes to

impairment in adulthood. These results also provide strong evidence for using the MACE

in counseling settings to detect experiences of emotional abuse that may not be

recognized as abuse by clients, but the information can inform and improve treatment

efficacy. Based on the results of this research, I conclude the MACE is a valid instrument

for capturing childhood maltreatment and predicting the experience of internalizing

symptoms.

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APPENDIX A – IRB Documentation

Institutional Review Board
Office of Research and Sponsored Programs
903 Bowers Blvd, Huntsville, TX 77341-2448
Phone: 936.294.4875
Fax: 936.294.3622
irb@shsu.edu
www.shsu.edu/~rgs_www/irb/

DATE: March 21, 2018

TO: Elizabeth Wofford [Faculty Sponsor: Dr. Rick Bruhn]

FROM: Sam Houston State University (SHSU) IRB

PROJECT TITLE: *Examining The Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on Internalizing Symptoms [T/D]*

PROTOCOL #: 2017-12-37149

SUBMISSION TYPE: INITIAL REVIEW—RESPONSE TO MODIFICATIONS

ACTION: APPROVED

APPROVAL DATE: March 21, 2018

EXPIRATION DATE: **March 21, 2019**

REVIEW TYPE: FULL BOARD

REVIEW CATEGORIES: **§46.111 Criteria for IRB approval of research (Subpart A)**

Thank you for your submission of your **Response to Modifications** for this project. The Sam Houston State University (SHSU) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received **Full Board** Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the consent document.

Please note that this committee must approve any revision to previously approved materials prior to initiation. Please use the appropriate revision forms for this procedure, which can be obtained by emailing the IRB Administrator at irb@shsu.edu.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Sam Houston State University IRB's records

Institutional Review Board
Office of Research and Sponsored Programs
903 Bowers Blvd, Huntsville, TX 77341-2448
Phone: 936.294.4875
Fax: 936.294.3622
irb@shsu.edu
www.shsu.edu/~rgs_www/irb/

appropriate reporting forms for this procedure. All Department of Health and Human

Services and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be

reported promptly to this office.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. **Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of March 21, 2019. When you have completed the project, a Final Report must be submitted to ORSP in order to close the project file.**

Please note that all research records must be retained for a minimum of three years after

the completion of the project.

If you have any questions, please contact the IRB Office at 936-294-4875 or irb@shsu.edu. Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Donna Desforges
IRB Chair, PHSC
PHSC-IRB

Sam Houston
STATE UNIVERSITY
A Member of The Texas State University System

IRB APPROVED

Informed Consent

My name is Elizabeth Wofford, and I am a Doctoral student of the department of Counselor Education at Sam Houston State University. I would like to take this opportunity to invite you to participate in a research study of a measurement of childhood experiences and their relationship to symptoms of anxiety or depression in adulthood. I am conducting this research under the direction of Dr. Rick Bruhn. I hope that data from this research will help us to better understand the relationship between childhood experiences and the experience of anxiety and depressive symptoms in adulthood.

The research is relatively straightforward, and we do not expect the research to pose any physical risk to any of the volunteer participants. If you consent to participate in this research, you will be asked to complete a demographic and written question form and complete two assessments online via this website. The assessments gather information about different things you may have experienced before you were 18, and the timing of when these things occurred. The second assessment is designed to gather information about your experience of symptoms of anxiety, depression, or general stress. Any data obtained from you will only be used for the purpose of this study and the publishing of the findings. Under no circumstances will you or any other participants who participated in this research be identified. In addition, your data will remain confidential.

This research will require approximately one hour of your time. Participants will not be paid or otherwise compensated for their participation in this project. Participants will have the opportunity to be entered into a drawing for an Amazon Echo Dot. The website will collect responses and maintain them in a database established by the researcher. Records will be kept behind multiple locks and passwords per HIPPA privacy regulations. No identifying data will be included in the database or connected to responses.

Participation is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. If you have any questions, please feel free to ask me using the contact information below. If you are interested, you may contact the primary investigator to obtain copy of your results at the conclusion of your survey.

A copy of this consent form is available for your records.

If you have any questions about this research, please feel free to contact me, Elizabeth Wofford, or Dr. Rick Bruhn. If you have questions or concerns about your rights as research participants, please contact Sharla Miles, Office of Research and Sponsored Programs, using her contact information below.

| *Elizabeth Wofford*
Department of Counselor Education
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☐ I understand the above and consent to participate.

☐ I do not wish to participate in the current study.

Dear Participant,

My name is Elizabeth Wofford. I am a Licensed Professional Counselor and Doctoral Student at Sam Houston State University in the field of Counselor Education. I am conducting a research study in an effort to investigate the relationship between a new assessment of childhood abuse and neglect and an assessment of symptoms of depression, anxiety, and general stress. I would be pleased to have your input. If you would be willing to participate, please visit my website:

https://sites.google.com/site/ejwofforddissertation/

Upon completion of these surveys you will have a chance to win one of two Amazon Echo Dot devices. The assessments should take no more than an hour, and all information provided will be anonymous. Your input would be greatly appreciated! Feel free to contact me with any questions or comments.

Thank you for your time and participation.

Elizabeth Wofford

Participants Needed
for Research on Childhood Abuse and Neglect

My name is Elizabeth Wofford. I am a Licensed Professional Counselor and Doctoral Student at Sam Houston State University in the field of Counselor Education.

I am conducting a research study in an effort to investigate the relationship between a new assessment of childhood abuse and neglect and an assessment of symptoms of depression, anxiety, and general stress. I would be pleased to have your input. If you would be willing to participate, please visit my website below

Upon completion of these surveys you will have a chance to win one of two Amazon Echo Dot devices. The assessments should take no more than an hour, and all information provided will be anonymous. Your input would be greatly appreciated!

Feel free to contact me with any questions or comments. ejw010@shsu.edu

Win an Amazon Echo Dot!

Website Address Below!

Research Study https://sites.google.com/site/ejwofforddissertation/

Research Study https://sites.google.com/site/ejwofforddissertation/

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Research Study https://sites.google.com/site/ejwofforddissertation/

Abstract: The study will examine the relationship between experiences of childhood maltreatment (abuse, neglect, or other environmental factors such as witnessing abuse or drug use of family members) and the experience of symptoms of depression, anxiety, or general stress in adulthood.

Description: You will be asked to answer some demographic questions and then two different assessments. The first is 21 questions and asks about general symptoms of depression, anxiety, or stress. The second is 52 questions of yes or no answers about things you may have experienced in childhood. You will receive 2 credits for approximately 1 hour of participation. You may also choose to be entered in a drawing for a new Amazon Echo Dot.

Eligibility requirements: You must be 18 years of age or older to participate.

Examining The Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on Internalizing Symptoms

Counseling Resources

If you experience any distressing symptoms or would like to further discuss any issues that may have arisen while completing this study, you may contact the primary researcher at ejw010@shsu.edu. Furthermore, if you would like counseling, you may contact any of the options below for the Huntsville, Bryan/College Station, and surrounding areas, or use any of the national resources to find a counselor in your area. If you are not local to these areas, you are invited to contact the primary researcher and she will assist you with finding counseling resources in your area.

SHSU Counseling Center
 1608 Ave. J | Huntsville, TX 77341 |Phone: 936.294.1720 |Fax: 936.294.3794
http://www.shsu.edu/dept/counseling/

SAAFE House
Offers confidential services for those who have experienced any type of sexual assault, domestic violence, stalking, and child abuse.
936.291.3529| 24/7 Hotline 936.291.3369| www.saafehouse.org

Twin City Mission Counseling Services
Serves Bryan/College Station and surrounding counties)
979- 822-7511 - https://www.twincitymission.org/contact-us

Sexual Assault Resource Center
Serves Bryan/College Station and surrounding counties)
979-731-1000 - http://www.sarcbv.org/contact-us

A&M Christian Counseling Center
Offers sliding fee scale, located in Bryan, TX
979-703-1808 - https://www.amchristiancounseling.com/

Counseling and Assessment Clinic
Located in Bryan, TX
(979)-595-1770 - http://cac.tamu.edu/node

National Resources

Use any of the links below to find counselors in your area:

American Psychological Association - https://locator.apa.org

Good Therapy - https://www.goodtherapy.org/find-counselors.html

Psychology Today - https://www.psychologytoday.com/us/therapists

National Certified Counselors - http://www.nbcc.org/Search/CounselorFind

National Suicide Prevention Hotline – online chat available -
https://suicidepreventionlifeline.org/ 1-800-273-8255

APPENDIX B – Demographic Questionnaire

Examining the Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on the Experience of Internalizing Symptoms

For each question, please fill in the blanks or choose the answer that best matches your response.

Some questions ask about your current status, and some questions ask about your primary caregiver's situation while you were growing up (between 0-18 years old). If you moved between caregivers, choose the answer that <u>was true the majority of the time.</u>

What is your gender?
○ Male
○ Female
○ Prefer not to say

What is your age?
○ 17 – 25
○ 26 – 35
○ 36 – 50
○ 51 – 65
○ 65-75
○ Over 75

What is your marital status?
○ Married
○ Widowed
○ Separated
○ Divorced
○ Living with Partner
○ Single
○ Other

How would you describe your race or ethnicity? (check all that apply)
- ☐ Native American
- ☐ Asian
- ☐ African American / Black
- ☐ Caucasian / White
- ☐ Hispanic / Latino
- ☐ Pacific Islander
- ☐ Multiracial
- ☐ Racial

What is your highest level of education?
- ○ Attended high school but did not finish
- ○ High School Diploma
- ○ Attended college but did not finish
- ○ Vocational/Technical degree or certificate
- ○ Associates Degree
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Doctorate Degree

How would you describe your current employment status?
- ○ Unemployment
- ○ Disable
- ○ Employed – Full Time
- ○ Employed – Part Time
- ○ Looking for Employment
- ○ Student
- ○ Homemaker
- ○ Retired
- ○ Other

What do you expect your combined family income to be this year?

○ Under $25.000

○ $25,001 – $40,000

○ $40,001 – $50,000

○ $50,001 – $75,000

○ $75,001 – $100,000

○ $100,001 – $125,000

○ $125,001 – $150,000

○ $150,001 – $175,000

○ Over $175,000

What is your occupation?

[   ]

How many children (including you) lived in your primary household **when you were a child (under 18 years old**)?

○ 1

○ 2 –3

○ 4 – 5

○ 6 – 7

○ More than 6

What was the marital status of your **primary caregivers**? (check all that applied)

☐ Married

☐ Widowed

☐ Separated

☐ Divorced

☐ Living with Partner

☐ Single

☐ Other

What were your living arrangements **before you were 18?** (check all that apply)

- ☐ Live with one or both biological parents
- ☐ Live with biological family members
- ☐ Live with adopted family
- ☐ Foster family(s)
- ☐ Live with friends of family
- ☐ Other/None of the above

How would you describe your **primary caregiver's** race or ethnicity? (check all that apply)

- ☐ Native American
- ☐ Asian
- ☐ African American / Black
- ☐ Caucasian / White
- ☐ Hispanic / Latino
- ☐ Pacific Islander
- ☐ Multiracial
- ☐ Racial
- ☐ Other

What was your **primary caregiver's** highest level of education? (check all that apply)

- ☐ Attended high school but did not finish
- ☐ High School Diploma
- ☐ Attended college but did not finish
- ☐ Vocational/Technical degree or certificate
- ☐ Associates Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate Degree

How would you describe your **primary caregiver's** employment status while you were growing up (before you were 18?) (check all that apply)

☐ Unemployment

☐ Disabled

☐ Employed – Full Time

☐ Employed – Part Time

☐ Looking for Employment

☐ Student

☐ Homemaker

☐ Retired

☐ Other

What was **your primary caregiver's** average family income?

○ Under $25.000

○ $25,001 – $40,000

○ $40,001 – $50,000

○ $50,001 – $75,000

○ $75,001 – $100,000

○ $100,001 – $125,000

○ $125,001 – $150,000

○ $150,001 – $175,000

○ Over $175,000

What was your primary caregiver's occupation?

[   ]

Have you ever received a mental health diagnosis? (check all that apply)

☐ Anxiety

☐ Depression or dysthymia

☐ Bi-polar disorder

☐ Schizophrenia

☐ Schizoaffective disorder

☐ Post-Traumatic Stress Disorder

☐ Personality Disorder

☐ Other

☐ N/A

Have any of your biological family received a mental health diagnosis? (Check all that apply)

- Anxiety
- Depression or dysthymia
- Bi-polar disorder
- Schizophrenia
- Schizoaffective disorder
- Post-Traumatic Stress Disorder
- Personality Disorder
- Other
- N/A

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APPENDIX C – Depresison Anxiety and Stress Scale-21

Depression Anxiety and Stress Scale-21 (DASS-21) (Public Domain)

Images below show DASS-21 as formatted on study website

Examining the Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on the Experience of Internalizing Symptoms
Depression, Anxiety and Stress Scale (DASS-21)

For each statement below, please choose the number in the column that best represents how you have been feeling in the last week.

1. I found it hard to wind down.

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

2. I was aware of dryness of my mouth

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

3. I couldn't seem to experience any positive feeling at all

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

4. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

5. I found it difficult to work up the initiative to do things

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

6. I tended to over-react to situations

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

7. I experienced trembling (eg, in the hands)

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

8. I felt that I was using a lot of nervous energy

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

9. I was worried about situations in which I might panic and make a fool of myself

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

10. I felt that I had nothing to look forward to

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

11. I found myself getting agitated

E 0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

12. I found it difficult to relax

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

13. I felt down-hearted and blue

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

14. I was intolerant of anything that kept me from getting on with what I was doing

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

15. I felt I was close to panic

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

16. I was unable to become enthusiastic about anything.

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

17. I felt I wasn't worth much as a person

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

18. I felt that I was rather touchy

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

20. I felt scared without any good reason.

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me very much or most of the time
○	○	○	○

21. I felt that life was meaningless

0-Did not apply to me at all	1- Applied to me to some degree or some of the time	2- Applied to me a considerable degree or a good part of the time	3- Applied to me v much or most of the time
○	○	○	○

APPENDIX D – Maltreatment and Abuse Chronology of Exposure Scale

Maltreatment and Abuse Chronology of Exposure Scale (MACE) (Public Domain)

All subscales used except witness of violence to siblings

Sometimes parents, stepparents or other adults living in the house do hurtful things.
If this happened during your childhood (first 18 years of your life) please provide your best estimate of your age at the time(s) of occurrence.
Please check all ages that apply.

For example item 1. Swore at you, called you names, said insulting things like your "fat", "ugly", "stupid", etc. more than a few times a year.

If at ages 6-8 your father swore at you and at ages 8-10 your mother insulted you, and at age 17 your mother's new live-in boyfriend called you names; you would check off as follows:

● Yes   ○ No

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
					✓	✓	✓	✓	✓							✓	

1. Swore at you, called you names, said insulting things like your "fat", "ugly", "stupid", etc. more than a few times a year.

   Please check all ages that apply.

   ○ Yes_1 ○ No_0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

2. Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year.

   Please check all ages that apply.

   ○ Yes_1 ○ No_0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

3. Acted in a way that made you afraid that you might be physically hurt.

   Please check all ages that apply.

   ○ Yes_1 ○ No_0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

4. Threatened to leave or abandon you.
   Please check all ages that apply.

   ○ Yes   ○ No_0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

5. Locked you in a closet, attic, basement or garage.
   Please check all ages that apply.

   ○ Yes_1 ○ No_0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

6. Intentionally pushed, grabbed, shoved, slapped, pinched, punched or kicked you.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

7. Hit you so hard that it left marks for more than a few minutes.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

8. Hit you so hard, or intentionally harmed you in some way, that you received or should have received medical attention.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

9. Spanked you on your buttocks, arms or legs.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯   No ◯

10. Spanked you on your bare (unclothed) buttocks.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

11. Spanked you with an object such as a strap, belt, brush, paddle, rod, etc.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

12. Made inappropriate sexual comments or suggestions to you.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

13. Touched or fondled your body in a sexual way.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

14. Had you touch their body in a sexual way.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Yes_1 ◯ No_0 ◯

Sometimes adults or older individuals NOT living in the house do hurtful things to you.
If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence.
Please check all ages that apply.

19.	Had you touch their body in a sexual way. Please check all ages that apply.																		Yes_1 ◯	No_0 ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

20.	Actually had sexual intercourse (oral, anal or vaginal) with you. Please check all ages that apply.																		Yes_1 ◯	No_0 ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

Sometimes intense arguments or physical fights occur between parents, stepparents or other adults (boyfriends, girlfriends, grandparents) living in the household.
If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence.
Please check all ages that apply.

21.	Saw adults living in the household push, grab, slap or throw something at your mother (stepmother, grandmother). Please check all ages that apply.																		Yes_1 ◯	$No_.$ ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

22.	Saw adults living in the household hit your mother (stepmother, grandmother) so hard that it left marks for more than a few minutes. Please check all ages that apply.																		Yes_1 ◯	No_0 ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

23.	Saw adults living in the household hit your mother (stepmother, grandmother) so hard, or intentionally harm her in some way, that she received or should have received medical attention. Please check all ages that apply.																		$Yes_.$ ◯	$No_.$ ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

24.	Saw adults living in the household push, grab, slap or throw something at your father (stepfather, grandfather). Please check all ages that apply.																		Yes_1 ◯	$No_.$ ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

25.	Saw adults living in the household hit your father (stepfather, grandfather) so hard that it left marks for more than a few minutes. Please check all ages that apply.																		Yes_1 ◯	$No_.$ ◯
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

Sometimes children your own age or older do hurtful things like bully or harass you.
If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence.
Please check all ages that apply.

26. Swore at you, called you names, said insulting things like your "fat", "ugly", "stupid", etc. more than a few times a year.
Please check all ages that apply.

○ Yes$_1$ ○ No$_0$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

27. Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year.
Please check all ages that apply.

○ Yes$_1$ ○ No$_0$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

28. Said things behind your back, posted derogatory messages about you, or spread rumors about you.
Please check all ages that apply.

○ Yes$_1$ ○ No$_0$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

29. Intentionally excluded you from activities or groups.
Please check all ages that apply.

○ Yes$_1$ ○ No$_0$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

30. Acted in a way that made you afraid that you might be physically hurt.
Please check all ages that apply.

○ Yes   ○ No

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

31. Threatened you in order to take your money or possessions.
Please check all ages that apply.

○ Yes$_1$ ○ No$_0$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

32.	Forced or threatened you to do things that you did not want to do. Please check all ages that apply.																		Yes_1	No_0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

33.	Intentionally pushed, grabbed, shoved, slapped, pinched, punched, or kicked you. Please check all ages that apply.																		Yes_1	No_0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

34.	Hit you so hard that it left marks for more than a few minutes. Please check all ages that apply.																		Yes_1	No_0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

35.	Hit you so hard, or intentionally harmed you in some way, that you received or should have received medical attention. Please check all ages that apply.																		Yes_1	No_0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

36.	Forced you to engage in sexual activity against your will. Please check all ages that apply.																		Yes_1	No_0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

37.	Forced you to do things sexually that you did not want to do. Please check all ages that apply.																		Yes_1	No
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

Please indicate if the following happened during your childhood (first 18 years of your life). Please provide your best estimates of your age at the time(s) of occurrence.

Please check all ages that apply.

38. You felt that your mother or other important maternal figure was present in the household but emotionally unavailable to you for a variety of reasons like drugs, alcohol, workaholic, having an affair, heedlessly pursuing their own goals.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

39. You felt that your father or other important paternal figure was present in the household but emotionally unavailable to you for a variety of reasons like drugs, alcohol, workaholic, having an affair, heedlessly pursuing their own goals.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

40. A parent or other important parental figure was very difficult to please.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

41. A parent or other important parental figure did not have the time or interest to talk to you.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

42. One or more individuals in your family made you feel loved.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

43. One or more individuals in your family helped you feel important or special.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

44. One or more individuals in your family were there to take care of you and protect you.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

45. One or more individuals in your family were there to take you to the doctor or Emergency Room if the need ever arose, or would have if needed.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

Please indicate if the following statements were true about you and your family during your childhood, and your age at the time(s) you felt this to be true.
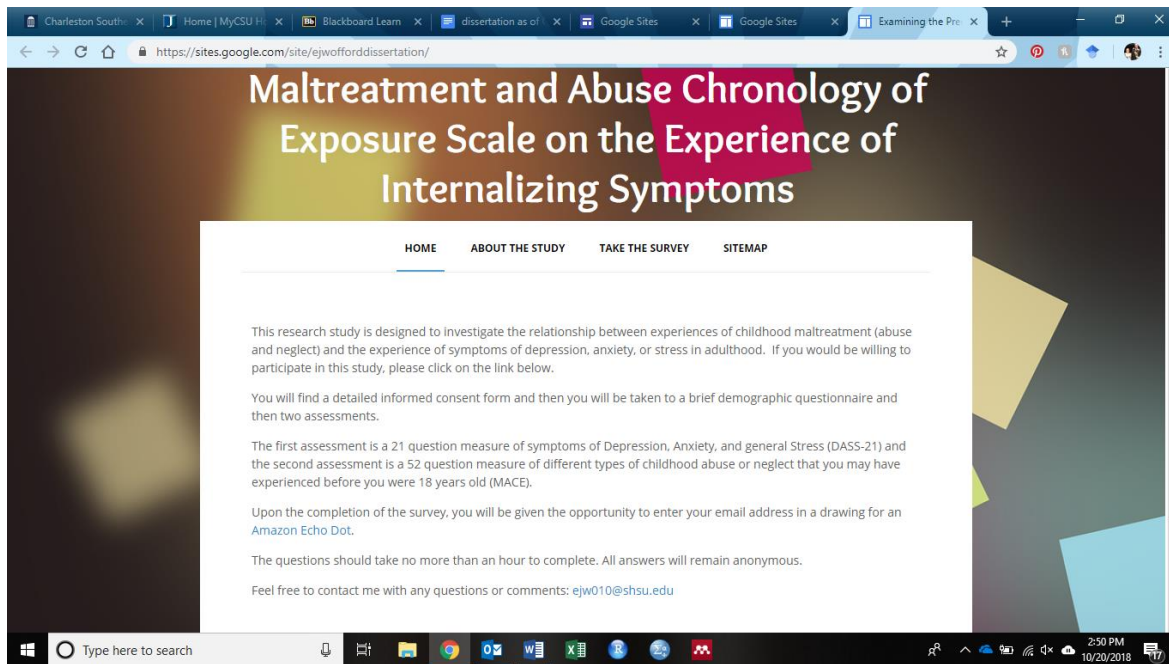
Please check all ages that apply.

46. You didn't have enough to eat.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

47. You had to wear dirty clothes.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

48. You felt that you had to shoulder adult responsibilities.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

49. You felt that your family was under severe financial pressure.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

50. One or more individuals kept important secrets or facts from you.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

51. People in your family looked out for each other.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

52. Your family was a source of strength and support.
Please check all ages that apply.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

○ Yes_1 ○ No_0

APPENDIX E - Website

https://sites.google.com/site/ejwofforddissertation/home

Website Screenshots

Examining the Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on the Experience of Internalizing Symptoms

HOME   ABOUT THE STUDY   TAKE THE SURVEY   SITEMAP

About The Study

Sam Houston State University

Examining the Predictive Validity of the Maltreatment and Abuse Chronology of Exposure Scale on the Experience of Internalizing Symptoms

Why am I being asked?

You are being asked to be a participant in a research study about childhood abuse and neglect and symptoms of depression, anxiety, and stress conducted by Elizabeth Wofford, under the direction of Dr. Rick Bruhn, Dr. David Lawson, and Dr. Chi-sing Li of the Center for Research and Doctoral Studies in Counselor Education at Sam Houston State University. You have been asked to participate in the research because you are a person, over 18, with unique experiences and are eligible to participate. You must be 18 years or older to participate. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Sam Houston State University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Why is this research being done?

This research is being done to investigate whether or not a new measure of childhood maltreatment is valid and if it shows a relationship between experiences of childhood abuse and neglect and adult experiences of symptoms of depression, anxiety, and stress. Understanding and quickly recognizing histories of childhood maltreatment can greatly aid researchers and mental health professionals in their mission to provide the most relevant and effective services to survivors of childhood abuse and neglect.

What procedures are involved?

If you agree to be in this research, we would ask you to answer 60 to 100 questions on an internet based survey site   This one-time survey will take no more than an hour to complete.

Approximately 150 participants will be involved in this research at Sam Houston State University or other communities in the United States.

What are the potential risks and discomforts?

The potential risks you face for participating would be minimal to none. You may skip a question if you do not wish to answer. If participation in this study has a negative impact on you, please discontinue participation. If you wish to discuss the information above or any other risks you may experience, you may contact the Principle Investigator, Elizabeth Wofford at ejw010@shsu.edu

Are there benefits to taking part in the research?

The Maltreatment and Abuse Chronology of Exposure scale is a promising new measure of childhood maltreatment. It is designed to capture the most information in a usable format to aid counselors and other mental health practitioners to better serve individuals who have experienced difficult things in their childhood and may be experiencing distressing symptoms as adults.

You can receive a copy of your answers if you wish.

What about privacy and confidentiality?

No names or identifying data will be included with your results. If you choose to enter your email address into the prize drawing, it will be stored in a separate form and completely separate from your answers to the questions.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Each participant will be assigned a number and personal information removed from related research data. All records will be stored behind two separate locks or passwords to prevent unauthorized personnel from accessing them. You will be contacted personally if any other use of the information you provide will be necessary.

Can I withdraw or be removed from the study?

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time

Each participant will be assigned a number and personal information removed from related research data. All records will be stored behind two separate locks or passwords to prevent unauthorized personnel from accessing them. You will be contacted personally if any other use of the information you provide will be necessary.

Can I withdraw or be removed from the study?

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

Who should I contact if I have questions?

The researcher conducting this study is Elizabeth Wofford. You may ask any questions you have now. If you have questions later, you may contact the researcher ejw010@shsu.edu

Agreement to Participate

If you agree to participate, please mark your acknowledgement on the first page of the survey form.

Take me to the survey!

VITA

Elizabeth Wofford, Ph.D.

AREAS OF EXPERTISE/INTEREST
- Child/Adolescent/Family Counseling
- Counselor Education
- Clinical Supervision
- Childhood trauma
- Trauma Counseling
- Play Therapy
- EMDR Therapy

EDUCATION

Sam Houston State University –2018
· Ph.D. in Counselor Education
· CACREP Accredited

Sam Houston State University - 2014
· MA in Clinical Mental Health Counseling
· CACREP Accredited

Texas A&M University - 2010
· B.S. in Psychology
· Magna Cum Laude

PROFESSIONAL EXPERIENCE

Teaching

- Teaching assistant - Summer 2017

Sam Houston State University (SHSU)
- COUN 6376 – *Supervised Practicum*
- Performed life supervision of students, led group supervision weekly, supervised two Master's students

Teaching assistant - **2016**
   Sam Houston State University (SHSU)
      o COUN 5379 – *Research Methods*
      o Assisted with class projects, guest lecture for activities

Teaching assistant - **2011-2014**
   Blinn College, Bryan, TX
      o ENGL 320 – *Writing*
      o Assisted with lecture, homework review, individual tutoring, grading, and entering grades into blackboard online course system.

Teaching assistant - **2011-2014**
   Blinn College, Bryan, TX
      o READ 320 – *Reading*
      o Assisted with lecture, homework review, individual tutoring, grading, and entering grades into blackboard online course system.

Academic Writing Tutor - **2011-2014**
   Blinn College, Bryan, TX
- College Reading and Learning Association Certified Advanced Tutor
- Tutored students in any academic course at Blinn College in all parts of the writing process: Planning, Outlining, Drafting, Revising, Editing, Citations.

Professional Editor - **2011-Current**
   Bryan, TX
- College Reading and Learning Association Certified Advanced Tutor
- Edited Dissertations in Counselor Education (2014; 2015)
- Worked with graduate students and professors in the College of Mechanical Engineering at Texas A&M University on dissertations and articles for publication. Many articles have been published.

CLINICAL EXPERIENCE
January 2016- July 2018 - A&M Christian Counseling Association - Bryan, Tx.
- Independent contractor providing individual therapy: child, adolescent, and adults.

2015-16 - Texas A&M Unviersity College of Nursing - Bryan, Tx.
- Academic and emotional support advisor to 200 nursing students and prospective nursing students.
- Assisted students with effectively managing the pressures of nursing school, provided referrals as needed.

2014-15 - MHMR of the Brazos Valley - Burleson and Robertson Counties, TX.
- Level I Caseworker – managed and coordinated care for approximately 200 clients between two counties.
- Supervisor: Alison Pourteau, LPC-S
- Intake – intake and assessment
- Case management – office and fieldwork
- Therapy – direct clinical services through individual, group and family counseling services for clients.
- Crisis Screening – shifts that involved screening adult/adolescent/children in crisis at the hospital or jail setting who have section 26 or 28 due to suicidal, homicidal or psychotic symptoms. Screening entails possible recommendation for inpatient hospitalization, or referral.

2014-15 - Domestic Violence Support Group - Brazos Valley Counseling Services - Bryan, Tx.
- Facilitated weekly support group for survivors of domestic violence.

2013-14 - Brazos Valley Counseling Services - Bryan, Tx.
- Practicum student individual therapy: child, adolescent, and adults.

2014 - Pregnancy Assistance Center North - Conroe, Tx.
- Practicum student individual therapy: child, adolescent, and adults.
- Provided pregnancy test and pregnancy options counseling to clients.

Clinical Supervision
- 2016 Spring - Clinical Supervisor to two Master's Level Practicum Students

- 2017 Summer - Clinical Supervisor to two Master's Level Practicum Students
- 2017 Summer - Group Supervision Facilitator to 6 Doctoral Level Practicum Students

SCHOLARLY AND CREATIVE ENDEAVORS

Professional Presentations
State/Local

Rosenblad, S., & Webb-Wofford, E. J. (2018) SOLACE: Know Yourself, Empowering Holistic Understanding in Supervision Texas Association of Counselor Educators and Supervisors, Austin, Tx, 2018.

Rosenblad, S., Peterson, D., & Webb, E. J. (2015) Sandtray therapy: Basics and use with adults, counseling supervisees, and children who have experienced trauma. Texas Counseling Association, Corpus Christi, Tx, 2015.

Webb-Wofford, E.J. & Robles-Piña, R. (2016). Using comparative education to increase cultural identity development with children in Haiti. Experiential Learning Module presentation, TAMU, 2016.

Webb-Wofford, E.J. & Robles-Piña, R. (2017). Goat chili: A school lunch program to feed a community in Haiti. Experiential Learning Module presentation, TAMU, 2017.

Webb-Wofford, E.J., Robles-Piña, R., Piña, M. (2017). International development work model: Case study of christianville foundation. Experiential Learning Module presentation, TAMU, 2017.

Webb-Wofford, E.J., Robles-Piña, R., Piña, M. (2017) Relieving human suffering through a children's home internship in Haiti. Experiential Learning Module presentation, TAMU, 2017.

Webb-Wofford, E.J., Robles-Piña, R., Piña, M. (2017) Relieving human suffering through child sponsorship program in Haiti: A case study. Experiential Learning Module presentation, TAMU, 2017.

Webb-Wofford, E.J. (2012). APA vs. MLA: Compare and contrast citation styles and learn how to use them well. Blinn Writing Center, Bryan, Tx, 2012.

By Special Invitation

Webb, E.J. (2016). Therapeutic communication and defense mechanisms in mental health patients. Texas A&M University College of Nursing, College Station, Tx, 2016.

Webb, E.J. (2015). Therapeutic communication and it's use for mental health nurses. Texas A&M University College of Nursing, College Station, Tx, 2015.

PROFESSIONAL INVOLVEMENT AND SERVICE

Professional Affiliations and Memberships
o   National

     2016– current   American Association of Christian Counselors

o   State

     2011 –   Texas Association of Counselors (TCA)
     current   Texas Association of Counselor Educators and Supervisors
     2018   (TACES)
     – current

Committee Membership
Department
     2011-2013   Hiring Committee, Blinn College Writing Center

Honors and Awards

Local
     W. Tom Thweatt III Memorial Graduate Scholarship – 2018 – Sam Houston State
       University
     W. Tom Thweatt III Memorial Graduate Scholarship – 2016 – Sam Houston State
       University
     James O. Mathis Scholarship – 2014 – Sam Houston State University
       Awarded to an outstanding graduate student in the Master's of Counseling program
         that shows potential to be a leader in the field of counseling.

Honor Society
     o Chi Sigma Iota, National Counseling Honor Society
     o Phi Beta Kappa, National Academic Honor Society

Credentials
Licensed Professional Counselor (in Texas)
EMDR trained (Eye Movement Desensitization and Reprocessing)