Factors influencing psychotherapy completion in children exposed to adverse childhood experiences

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Factors Influencing Psychotherapy Completion in Children Exposed to Adverse Childhood Experiences

by

Cheryl K. Best

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ABSTRACT

Child maltreatment and childhood adversity are associated with a broad range of poor mental and physical health outcomes throughout the lifespan. The consequences of childhood adversity have led psychologists in efforts to identify the most effective therapeutic approaches and interventions with which to address the negative effects of childhood trauma. Even as a number of efficacious treatments have been established as best practices for treating childhood trauma, barriers exist in community mental health settings that oftentimes prevent full implementation of these interventions and practices. A growing body of research has focused on better understanding the high rates of attrition from child psychotherapy, particularly in community settings. Research has identified several treatment factors that may influence premature termination from psychotherapy. Identification of these factors is important so that barriers to treatment completion can be reduced and children can receive the full benefits of psychotherapy. The current study examined the effect of adverse childhood experiences (ACEs) on psychotherapy; specifically, associations between ACEs and psychological diagnoses, as well as child factors, family factors, and therapeutic factors that may interact with a child’s level of exposure to adverse childhood experiences to predict premature termination from psychotherapy. Results of this study show that ACEs are not more associated with certain mental disorders than others in children, that ACEs do not significantly impact child psychotherapy completion, nor do they interact with potential moderators to influence completion of psychotherapy. This study does support that consistent attendance may be associated with psychotherapy completion. Furthermore, the finding that ACEs do not significantly impact psychotherapy completion supports the idea that community mental health clinics can retain children in treatment as usual regardless of the level of trauma exposure.
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# TABLE OF CONTENTS

**Introduction**

- Child Maltreatment and Trauma ......................................................... 1
- Adverse Childhood Experiences ....................................................... 6
- Psychotherapy to Address Childhood Trauma ....................................... 16
- Community Mental Health ............................................................... 19
- Factors Moderating Treatment Outcomes .......................................... 25

**Current Study**

- Hypotheses ......................................................................................... 31
- Methods ........................................................................................... 32
- Results ............................................................................................. 38
- Discussion ....................................................................................... 44

**References** ...................................................................................... 54

**Tables** ............................................................................................ 74

**Figures** ............................................................................................ 80

**Appendices** ..................................................................................... 81
LIST OF TABLES

Table 1: Study Participant Demographic Characteristics
Table 2: ACEs Scores
Table 3: Prevalence of ACEs Categories
Table 4: Treatment Characteristics of Sample
Table 5: Collateral Participation
Table 6: Correlations Among Continuous Variables of Interest

LIST OF FIGURES

Figure 1: ACEs Impact Throughout the Lifespan
Child Maltreatment and Trauma

Early child maltreatment is a topic of national concern that reaches epidemic levels in the United States (Centers for Disease Control and Prevention, 2019; Dube, 2018; Spinazzola et al., 2005; Administration on Children, Youth, & Families, 2019). Child maltreatment is most commonly conceptualized as neglect, physical and sexual abuse, and psychological maltreatment (ACYF, 2019); and is often characterized by traumatic events, defined as “event[s] that [are] frightening, dangerous, or violent and [that] pose a threat to … life or bodily integrity” (The National Child Traumatic Stress Network, 2019a). A 2019 report by the U.S. Department of Health and Human Services Children’s Bureau cited that over three and a half million children in the United States were subjects of child maltreatment investigations in 2019, representing a national increase of about 4% since 2015 (ACYF, 2019). Of these investigations, maltreatment was confirmed in 656,000 cases. An estimated 1,840 children died from abuse and neglect in the United States in 2019, which is an increase from 2018 (ACYF, 2019). Neglect and physical abuse were the most common types of maltreatment reported, and parents were cited as the perpetrators of maltreatment in 77.5% of cases.

These numbers are significant, as child maltreatment may contribute to a wide range of negative effects on child development and psychosocial adjustment that can have last into adulthood. Decades of research have identified seven primary domains that are negatively impacted by childhood trauma: biology, attachment, affect regulation, behavioral regulation, consciousness, cognition, and self-concept (Cook et al., 2005; D'Andrea et al., 2012; van der Kolk, 2014). The consequences of maltreatment range from an overactive physiological stress response system to maladaptive beliefs about the self and the world that can negatively impact individual relationships and psychosocial functioning. The specific manifestation of these
dysregulated systems can result in a myriad of psychological diagnoses, including depression and other mood disorders, anxiety disorders, attention-deficit / hyperactivity disorder, oppositional defiant disorder, conduct disorder, eating disorders, sleep disorders, communication disorders, reactive attachment disorder, and posttraumatic stress disorder (Cook et al., 2005; D'Andrea et al., 2012; Spinazzola et al., 2005).

Although there are many psychological diagnoses that may be associated with childhood trauma, posttraumatic stress disorder (PTSD) is the only disorder of which the diagnostic criteria is explicitly tied to trauma exposure. However, in studies examining diagnostic rates of PTSD in children exposed to traumatic events, results have yielded relatively low rates of the disorder. Copeland et al. (2007) examined exposure to traumatic events in 1,420 children between the ages of 9-16 and found that PTSD was diagnosed in less than 1% of participants, despite two-thirds of the sample reporting at least one traumatic experience in their lives and approximately 22% of the sample reporting some degree of trauma-related impairment. Although the diagnostic rate for PTSD was low, children in the sample who reported past trauma exposure had double the rates of other psychiatric diagnoses—including depressive disorders, anxiety disorders, and behavioral disorders—than participants who reported no traumatic exposures. In contrast, a meta-analysis that examined rates of PTSD following trauma exposure in youth found an average prevalence rate of 15.9%, which varied according to the type of trauma experienced and gender of the victim (Alisic et al., 2014). Specifically, boys exposed to non-interpersonal trauma displayed the lowest risk for PTSD (8.4%), whereas girls exposed to interpersonal trauma displayed the highest risk (32.9%).

Due to the complexities of childhood trauma, PTSD may not capture the full range of effects from childhood trauma (Cloitre et al., 2005; Courtois, 2004; D’Andrea et al., 2012). If
this is the case, inadequate diagnostic criteria and/or categories of trauma-related impairment may lead to inaccurate estimates of trauma-based disorders in children and may interfere with the development of appropriate treatments.

**Beyond PTSD: Complex Trauma and Interpersonal Trauma**

The diagnosis of PTSD was first introduced in the Diagnostic and Statistical Manual for Mental Disorders, third edition (DSM-III) in 1980 after psychologists recognized the dramatic negative effects of “shell shock” on World War II veterans (Crocq & Crocq, 2000). The original conceptualization of posttraumatic stress focused on the negative effects of acute life-threatening events on victims, particularly adults, who were directly impacted.

Even as subsequent versions of the DSM expanded its criteria to account for more indirect experiences of victimization and trauma (American Psychiatric Association, 2013) and came to acknowledge that the diagnosis can be applied to children, the formal criteria for PTSD does not account for many of the unique characteristics associated with childhood trauma specifically. To elaborate, there are at least five distinct characteristics of a traumatic event described by Chasson and colleagues that may affect the range and intensity of negative effects. These factors consist of victim type (e.g., direct versus indirect), type of trauma (e.g., sexual assault versus natural disaster), relationship between the victim and perpetrator (e.g., caregiver versus stranger), level of physical injury or threat, and number of trauma incidents (e.g., single event versus multiple events) (Chasson et al., 2013). Currently, DSM-5 criteria for PTSD acknowledge only two of the five factors previously described: victim type, as designated by level of trauma exposure in Criterion A; and type of trauma, as Criterion A also indicates that the traumatic event must involve “exposure to actual or threatened death, serious injury, or sexual violence” (APA, 2013, p. 271). Although DSM-5 criteria consist of an extensive list of
symptoms related to intrusion (Criterion B), cognitive and behavioral avoidance (Criterion C), negative alternations in mood and cognition (Criterion D), and alterations in physiological arousal (Criterion E), the symptoms remain dominated by the American Psychiatric Association’s standards for what is considered traumatic and is further blurred by the identification of symptoms that have significant overlap with other psychological disorders, especially for children.

Over time, psychologists have come to understand that trauma is more complex than initially realized. For example, research has uncovered that traumatic effects can differ depending on whether the trauma occurred in adulthood or childhood, and whether the trauma occurred in one incident (i.e., acute trauma) or across multiple incidents (i.e., prolonged or chronic trauma) (Banyard et al., 2001; Courtois, 2004; De Young et al., 2011; McCutcheon et al., 2010; van der Kolk, 2014). As such, PTSD represents only a narrow part of the posttraumatic syndrome spectrum.

Attempts to better understand traumatic effects in children led to the conceptualization of complex trauma. Although complex trauma is not a formal DSM diagnosis, the National Childhood Traumatic Stress Network defines this syndrome as childhood “exposure to multiple traumatic events—often of an invasive, interpersonal nature—and the wide-ranging, long-term effects of this exposure” (NCTSN, 2019b). The consequences of complex trauma are often the result of chronic interpersonal trauma, defined as “intentional acts by other human beings that threaten the life or bodily integrity of children or their primary support systems and caregivers” (Spinazzola et al., 2018). Interpersonal trauma is particularly harmful to an individual’s psychosocial functioning and self-concept, and these effects are amplified in childhood when the interpersonal trauma may cause harm to a child’s health, safety, survival, development, or
dignity in the context of a close dependent relationship (Dugal et al., 2016). Physical abuse, sexual abuse, psychological or emotional abuse, various forms of neglect, and exposure to interparental or domestic violence prior to adulthood may all be considered examples of childhood interpersonal trauma and may form the basis for complex trauma (Dugal et al., 2016).

Compared to the relatively low prevalence rates of PTSD in children exposed to traumatic events, prevalence rates of complex trauma tend to be much higher. One study found that 44% of children receiving trauma-focused treatments at a Child Advocacy Center had experienced complex trauma, a rate that is considered to be an underestimate because complex trauma could not be confirmed for many of the children in the study (Wamser-Nanney & Steinzor, 2016).

**Limitations in Measurement and Outcome Assessments**

The inadequacy of a PTSD diagnosis to accurately capture the wide range of childhood trauma effects has important implications for treatment. In reviewing effective treatments for children exposed to traumatic events, the majority of scientific research conducted to date has examined the impact of various manualized treatments on symptom reduction in children (Becker-Weidman, 2006; Cohen et al., 2011; Cohen et al., 2004; Deblinger et al., 2011; Kane et al., 2016; Scheeringa et al., 2011; Sharma-Patel & Brown, 2016). Although multiple outcome measures have been used to monitor progress in treatment studies, including the Child Behavioral Checklist (Achenbach, 1991) and Children’s Depression Inventory (Kovacs, 1980), recent literature reviews and meta-analyses have revealed that a large percentage of studies evaluating the effectiveness of trauma-focused psychological treatments for children use PTSD symptom checklists as the primary outcome measure (Silverman et al., 2008; Taylor & Chemtob, 2004; Trask et al., 2011) and/or require children to endorse a set number of specific PTSD
symptoms for inclusion in intervention studies (Cohen et al., 2004; Deblinger et al., 2011; Kane et al., 2016; Newman et al., 2014; Scheeringa et al., 2011). The problem with this practice is that the use of PTSD symptom checklists to track trauma-focused treatment outcomes may lead to potentially inaccurate results with low applicability to children with more complex presentations.

Given the limitations of current diagnostic labels that may undermine treatment studies for child traumatic stress, an objective measure of trauma exposure may enhance the interpretability of symptom checklists to track outcomes for trauma-focused child psychotherapy. Fortunately, such a valid and informative measure has existed for decades, though it has only recently become the focus of national organizations and researchers wishing to better understand the long-term effects of childhood trauma.

**Adverse Childhood Experiences**

Even as rates of child maltreatment in the United States remain high, statistics reported by the U.S. Department of Health and Human Services Children’s Bureau do not cover the full range of events that may be considered traumatic and that may have lasting negative effects on children. In 1998, public health and medical professionals discovered that a considerable proportion of adult patients who presented for smoking cessation and weight loss programs disclosed histories of childhood abuse, which led researchers to examine the associations between physical health and histories of child maltreatment and other stressful childhood events. The original Adverse Childhood Experiences (ACEs) study recruited 8,056 adult patients at Kaiser Permanente, a large medical HMO clinic in California (Felitti et al., 1998). The study compared recent comprehensive physical health examinations, questions about various past and present health behaviors, and responses from a questionnaire asking for retrospective reports about an array of adverse childhood experiences occurring prior to the age of 18. The
questionnaire examining adverse events in childhood became known as the ACEs questionnaire and has been widely used in research and clinical settings since its conception. The ACEs questionnaire is a set of ten questions written for adults that inquire about retrospective experiences in childhood such as physical abuse, sexual abuse, emotional abuse, physical and emotional neglect, poverty, family mental illness, domestic violence, and parental incarceration. See Appendix A for a full copy of the original ACEs questionnaire.

Results from the original ACEs study showed graded dose-response associations between the numbers of ACEs reported by adults and their risk for a vast range of behavioral and physical health outcomes. Associations were found between ACEs and several major health risk factors: smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, drug abuse, high lifetime number of sexual partners (more than 50), and history of sexually transmitted diseases (STDs). Associations were also found between ACEs and many health outcomes, including chronic lung disease (i.e., emphysema or chronic bronchitis), skeletal fractures, liver disease (i.e., hepatitis or jaundice), heart disease, and cancer. For example, Felitti et al. (1998) found that the adjusted odds ratio for lifetime suicide attempts increased from 1.0 in participants reporting no ACEs to 12.2 in participants reporting four or more ACEs. Similarly, the risk for ischemic heart disease increased from an adjusted odds ratio of 1.0 in participants reporting no ACEs to 2.2 in participants reporting four or more ACEs (Felitti et al., 1998). Subsequent studies conducted by different research groups employing retrospective reporting of ACEs in adult samples have supported similar results, revealing associations between ACEs and countless health outcomes ranging from poor dental health to risk for cardiovascular and autoimmune diseases among adults (Anda et al., 2008; Batten et al., 2004; Bright et al., 2015; Brown et al., 2009; Burke et al., 2011; Chapman et al., 2004; Corso et al., 2008; Dube et al.,
2009; Mersky et al., 2013; Pretty et al., 2013). To date, researchers have discovered graded associations between ACEs and over forty health outcomes (Division of Violence Prevention, 2019). See Figure 1 for a depiction of how ACEs affect individuals across the lifespan.

In November 2019, the Division of Violence Prevention at the United States Center for Disease Control and Prevention (CDC) released a report citing that approximately one in six U.S. adults have experienced four or more categories of ACEs during childhood, and 61% of U.S. adults have experienced at least one category of ACEs. This report also linked five of the top ten causes of death in the U.S. to ACEs exposure, including heart disease, cancer, chronic lower respiratory disease, stroke, and kidney disease. Women and ethnocultural minorities are currently at the greatest risk for exposure (DVP, 2019). Although the report focuses on the impact of adverse childhood events, it is important to consider that current life circumstances may interact with a history of ACEs to exacerbate their effects and further increase risk of poor health outcomes. For example, poverty and racial minority status may interact with ACEs to increase the risk of poorer outcomes (Bruner, 2017; Halfon et al., 2017).

Associations among ACEs categories themselves are highly significant. Perhaps unsurprisingly, all ten original ACEs tend to be significantly associated with one another. Felitti et al. (1998) found that for persons reporting exposure to at least one ACEs category, the probability of reporting another ACEs category was between 65-95%, and the probability of reporting two additional categories was between 40-74%. Another study found that 86% of individuals who endorsed one ACEs category reported at least one other, and 52% endorsed at least three more (Dong et al., 2004). In a separate study that investigated relations between multicategory abuse and adult mental health in the same Kaiser Permanente sample as the original ACEs study, researchers found that incidence rates of child abuse (i.e., physical, sexual,
or emotional) were particularly high and interrelated, as 43% of the sample reported any abuse, whereas 35% reported at least two types of abuse (Edwards et al., 2003). This study also revealed that as the number of categories of abuse increased, the quality of an individual’s mental health declined in a graded dose-response manner.

Since the original ACEs study, the questionnaire has been used by medical, public health, and mental health professionals in the United States to measure exposure to accumulated stressors during childhood. The majority of studies in which ACEs are examined consist of adult samples providing retrospective reports of adverse events that occurred during respondents’ first 18 years of life. In recent years, focused efforts have been made to determine if some children carry greater risk for ACEs than others and what early intervention efforts may be employed to mitigate risk for some of the documented negative health effects of ACEs. In 2011, the National Survey for Children’s Health (NSCH) became the first to adapt the original ACEs survey to evaluate current exposure in a national sample of U.S. children through reports by parents or guardians of children ages 17 or younger. The NSCH survey items differ slightly from the original ACEs items and include experiences of discrimination and parental death while excluding direct questions about sexual and physical abuse and emotional neglect; questions about economic hardship are also rephrased. The changes to this measure were carefully reviewed by an expert panel and informed by cognitive interviewing protocols to reduce under-reporting from social desirability (Bethell et al., 2017). See Appendix B for a copy of the NSCH-ACEs questionnaire.

Recent results from the NSCH in 2018 indicate that almost 17 million children in the U.S. have experienced at least one category of ACEs, with over 13 million having experienced

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1 Refers to original ACEs categories of physical abuse, sexual abuse, emotional abuse, physical and emotional neglect, poverty, family mental illness, domestic violence, and parental incarceration.
two or more categories of ACEs (Child and Adolescent Health Measurement Initiative, 2019). Prevalence rates of children experiencing two or more ACEs range from a low of 12.5% in New Jersey to a high of 28% in Oklahoma (CAHMI, 2019). The NSCH-ACEs survey has achieved high success in administration, with less than 1% of missing data reported (Bethell et al., 2017). Though the NSCH-ACEs survey is currently the most widely used reporting tool to examine current ACEs exposure in children, a universal tool to screen for current ACEs in children has not reached general agreement, and many other groups have adapted the original ACEs survey for use in specific child populations to assess current risk. Other measures include the Yale-Vermont Adversity in Childhood Scale (Y-VACS; Hudziak & Kaufman, 2014), the Center for Youth Wellness ACE-Questionnaire (Bucci et al., 2015), the 7-item Child ACE Tool (Marie-Mitchell & O’Connor, 2013), and the Crittenton Foundation ACEs assessment tool (National Crittenton Foundation, 2015).

As more is understood about the psychosocial effects of child exposure to adverse events, including but not limited to maltreatment, increasing efforts are made to understand how psychosocial treatments and early intervention are best delivered to individuals who have experienced traumatic events early in life.

**Using ACEs in Treatment Research**

As research continues to explore the effects of childhood ACEs, it is also important to examine what aspects of psychotherapeutic interventions are most effective in mitigating risk for poor health outcomes in ACEs-exposed children. Few studies examine moderating and mediating factors of interventions for trauma-exposed children, and even fewer have employed specific measures of trauma exposure as predictors in their analyses. Given the diagnostic issues

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2 A comparison of these and other ACES screening protocols can be found in Bethell, et al., 2017.
described previously, the use of a more objective measure of trauma “dosage” may allow for a fuller examination of how trauma exposure impacts outcomes, particularly when exposure does not result in clear PTSD. Given their vast clinical utility, examining ACEs specifically in the context of other therapeutic factors may yield important and useful data about how children engage in and progress through trauma-focused child psychotherapy.

Currently, the majority of ACEs research focuses on expanding the findings concerning how ACEs may impact physical and mental health over the lifespan, improving measurement to include a broader range of experiences for children and underrepresented groups, and exploring best practices for using ACEs in primary medical care. Few studies have examined ACEs’ impact on therapeutic intervention approaches, especially individual psychotherapy; however, emerging research is beginning to examine how health risks associated with ACEs are addressed using primary, secondary, and tertiary interventions.

Primary intervention strategies recommended to prevent ACEs in early childhood include perinatal mental health screening and perinatal Intimate Partner Violence (IPV) screening to prevent ACEs before birth (Asmussen et al., 2019). Secondary interventions include social emotional learning curriculums in school (Asmussen et al., 2019), enhanced primary care, and victim-centered services such as hotlines, shelters, and other community resources (CDC, 2019). Tertiary interventions to respond to problem behaviors and mental health symptoms in children as a result of ACEs consist of therapeutic interventions such as TF-CBT, Cognitive Behavioral Intervention for Trauma in Schools (CBITS), Child First program, Multisystemic Therapy (MST), Functional Family Therapy (FFT), and family-centered treatment approaches to address substance abuse and family mental illness (Asmussen et al., 2019; CDC, 2019). Parenting programs that focus on enhancing positive parenting skills—such as Positive Parenting Program
(Triple-P), Child Parent Psychotherapy (CPP), and Parent Child Interaction Therapy (PCIT)—have also emerged as treatment recommendations for preventing and mitigating the relational effects of ACEs (Oral et al., 2016).

Research using ACEs measures to examine outcomes of ACEs-exposed children in existing manualized interventions are difficult to find. Steinke and Derrick (2018) examined the role of ACEs on treatment engagement in a youth residential facility. The sample consisted of 111 young men (mean age 14.7), the majority of whom had been placed in the facility as adjudication for juvenile delinquency or Person in Need of Services (PINS). Results indicated that higher ACEs actually predicted greater engagement in treatment, increased readiness for change, and greater bonds with residential staff, based on youth self-report. The treatment approaches employed at this facility were not examined in this paper; therefore, the moderating effect of treatment approach was not examined. Aside from treatment effects, it is possible that a structured environment with lower levels of ACEs exposure could have a stabilizing effect on youth symptoms and allow for positive interpersonal connection, skill-building, and goal-setting. Individual levels of resilience are also important to consider. Researchers who analyzed the 2011-2012 NSCH found that children with higher ACEs and lower levels of resilience had lower rates of school and medical engagement, according to caregivers (Bethell et al., 2014).

The role of personal resilience in outcomes has driven recent intervention efforts designed specifically to target effects of ACEs in adults. Cameron et al. (2018) recruited 92 adults for ACE Overcomers, a 12-week community-based program focused on improving emotion regulation, self-awareness, resilience, and social functioning in adults with a history of ACEs. Within the sample, 54% reported an ACEs score of four or more (sample median was five, and mode was six), and over 70% reported chronic physical health conditions (rates of both
ACEs exposure and physical health conditions were higher than rates in the general population. Results from the 56 participants who completed post-measures revealed that the ACE Overcomers program led to significant (p < .01) improvements in emotion regulation, psychological resilience, mental well-being, physical illness and somatic symptoms, and quality of life (Cameron et al., 2018). The only difference between completers and noncompleters was age, in that older participants were more likely to complete treatment and post-measures. Furthermore, results were comparable between older and younger adults and between faith-based and secular components.

Another intervention designed for ACEs-exposed young women to enhance resilience showed less-promising results. Empower Resilience Intervention (ERI) is a four-week trauma-informed, strengths-based intervention designed to increase active coping and cognitive flexibility, enhance psychological strengths, and strengthen social support (Chandler et al., 2015). Participants were 17 women between the ages of 18-24 enrolled in college courses at a northeastern university; a comparison group of 11 participants was recruited and received no intervention between pre- and post-measures. Both groups reported an average of four ACEs and two physical or mental health symptoms. All participants attended every session and reported positive behavior changes between sessions; however, no significant results emerged in physical and mental health symptoms or resilience scores between the two groups or from pre- to post-intervention. A significant time by group interaction was found, in that intervention participants reported greater physical activity post-intervention. Despite this, 94% of participants reported satisfaction in the program, with many participants providing qualitative reports related to enhanced cognitive coping skills and social connection. The discrepancy between quantitative
and qualitative data in this study may be due to sample size, length of intervention, or a number of other variables.

Although ACEs-specific interventions have been piloted and tested, there is no known widespread implementation of these interventions, and more research support is needed to determine efficacy of these programs. Even with greater dissemination of programs that focus on psychological treatment for effects of ACEs, there remain barriers to accessing these types of treatment. For example, Black Americans may be more likely to experience ACEs, receive a PTSD diagnosis, and experience health disparities, and they are less likely to seek mental healthcare than White Americans (Goldstein et al., 2019). To address barriers to treatment-seeking, Goldstein et al. (2019) proposed a motivational enhancement intervention for Black Americans with a history of ACEs who seek regular care with their medical providers, as primary care may be an essential gateway to psychological intervention that could help mitigate or treat ACEs effects. The intervention consisted of two 30-60 minute sessions focused on providing psychoeducation to individuals about ACEs and effects of trauma, assessing risk factors for physical and mental illness, and enhancing participants’ motivation to change risk behaviors to improve outcomes. Of the 36 participants who completed the brief intervention, 65% reported an ACEs score of four or more at time of enrollment, and 58% screened positive for PTSD. Upon completion of the brief intervention, participants showed significant improvements in stress tolerance, alcohol use, risky sexual behaviors, and nutrition habits; and almost a third of participants were connected to behavioral health services (Goldstein et al., 2019).

Within ACEs-focused intervention efforts, the important role of early intervention cannot be ignored. One study examining the effects of early intervention on children with ACEs found
positive educational outcomes in adulthood (Giovanelli, 2018). In this study, 989 adults (93% African American, 7% Hispanic) were recruited between the ages of 35-37 who attended the Chicago Longitudinal Study Child-Parent Center early childhood intervention program (CPC) at age three or four. ACEs scores in the sample were relatively low, with 56% reporting at least one ACE and only 4% reporting four or more. Findings related to physical and mental health outcomes in adulthood were consistent with other ACEs research, in that health outcomes worsened as ACEs increased in a graded manner. Results of questionnaires revealed that participants who experienced ACEs prior to age five and who also attended CPC later obtained more years of education and were more likely to attain a college degree, compared to comparison groups, including those who attended CPC but did not have ACEs exposure prior to age five. Although other outcomes—including crime, income, weight, health behaviors, and self-reported mental and physical health—were not impacted significantly by CPC attendance in this study, this is nevertheless an important finding that supports that early intervention may mitigate long-term ACEs effects—in this case, through greater educational attainment.

Studies examining the role of ACEs in child treatment outcomes or treatment completion for either existing manualized interventions or TAU are limited, but research efforts may be growing. A recent study published in 2020 examined the impact of ACEs on psychotherapy outcomes in a sample of 74 adolescents who engaged in non-suicidal self-injury (NSSI; Edinger et al., 2020). Participants were divided into two treatment groups: those with an ACEs score of at least one (40.5% of sample) and those with no reported ACEs (59.5%). Measures of depressive symptoms, quality of life, and frequency of NSSI and suicide attempts were obtained pre-treatment and again after four and ten months of treatment onset. At the second and third time points, participants with a history of ACEs experienced significantly greater reductions in NSSI.
Both groups experienced reductions in suicide attempts, depressive symptoms, and quality of life after four and ten months of outpatient treatment; the magnitude of these results did not differ significantly between groups.

Although ACEs are widely documented to confer risk to a variety of individual outcomes—including but not limited to physical and mental health—these more recent studies show that individuals with a history of ACEs may achieve positive outcomes with proper interventions across the lifespan; in some cases, individuals with higher ACEs exposure experience greater treatment gains than comparison groups of individuals with lower ACEs scores. The current state of research could benefit from a greater examination of mediators and moderators of these effects, and it seems ACEs research is heading in that very direction. In addition to examining the role of resilience, recent studies have identified perceived discrimination (Gangamma et al., 2021) and emotion dysregulation (Cloitre et al., 2019; Poole et al., 2018) as potential mediators of the relation between ACEs and outcomes. Better understanding the mechanisms that connect ACEs to life outcomes can help guide future intervention efforts to target the effects of ACEs more directly and mitigate risk in individuals and their own offspring. Using the information already available, recommendations have been made for improving existing trauma-informed care for individuals who have a history of ACEs. These include modifying information-gathering methods to decrease re-traumatization, focusing on self-regulation skills training in interventions, and increasing attention to strengths and protective factors (Leitch, 2017).

**Psychotherapy to Address Childhood Trauma**

Interventions that have been found to be effective in treating the negative effects of childhood trauma include a number of specific cognitive behavioral therapies (CBT), trauma-
focused play therapy, school-based peer training interventions, and attachment-focused therapies (Saunders et al., 2003). Currently, Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and Child-Parent Psychotherapy (CPP) are two evidence-based treatments that have shown great success in treating a range of post-traumatic effects in children. The scientific literature largely identifies TF-CBT as the treatment of choice (Lucio & Nelson, 2016; Macdonald et al., 2012; Silverman et al., 2008), with CBT approaches generally outperforming other therapeutic approaches (Gutermann et al., 2016; Silverman et al., 2008).

**TF-CBT**

TF-CBT is a short-term (i.e., 12-25 sessions) CBT psychotherapy intervention designed for youth ages 3-21 who have experienced traumatic events and show subsequent mental health or adjustment difficulties (NCTSN, 2012). TF-CBT delivers psychotherapy in eight separate modules in the following order corresponding to the acronym PRACTICE: psychoeducation, relaxation, affect regulation, cognitive coping, trauma narration, in-vivo exposures, cognitive processing, and enhancing safety (Cohen & Mannarino, 2008a). The child’s specific trauma is addressed in each module, allowing for gradual exposure to discussing the trauma prior to the trauma narration. TF-CBT has been used to treat a variety of mental health difficulties associated with trauma exposure, including PTSD, anxiety, depression, externalizing behavioral problems, and more. Caregiver participation is expected in TF-CBT, with almost equal time spent with caregivers and youth separately to allow caregivers the opportunity to learn parenting skills to address trauma-related symptoms and to process their own reactions to their child’s trauma. TF-CBT targets trauma-related symptoms through an integrated mix of CBT approaches (e.g., relaxation skills training, emotion identification and coping, cognitive restructuring and coping,
Efficacy and Effectiveness Trials

The role of efficacy and effectiveness trials are important in understanding how effective treatments such as TF-CBT are developed. According to Singal et al. (2014), efficacy refers to the performance of an intervention under controlled conditions, whereas effectiveness refers to the performance of an intervention under naturalistic—or “real world”—conditions. However, these studies lie more on a continuum than a dichotomy, as “true” efficacy or effectiveness studies are difficult to find. Deblinger et al.’s (1996) initial study examining the efficacy of TF-CBT in 100 sexually abused children meeting DSM-III PTSD criteria found that TF-CBT was effective in reducing PTSD symptoms and increasing effective parenting skills in the study sample. Furthermore, only 16% of children who met PTSD diagnostic criteria at the beginning of treatment continued to meet criteria at post-treatment, compared to 30% in the TAU condition (Deblinger et al., 1996). A later efficacy study comparing TF-CBT to child-centered therapy (CCT) examined 229 children with a documented history of sexual abuse, who were recruited by two large university-affiliated outpatient clinical treatment programs (Cohen et al., 2004). Recruitment, assessment, and treatment protocols were identical and reviewed closely between the two sites. In total, 73% of child participants completed the full 12-session protocol. TF-CBT showed significant reductions in PTSD symptoms, depressive symptoms, and total symptoms; furthermore, effects were significantly greater for TF-CBT than CCT. Only 21% of participants who completed TF-CBT met diagnostic criteria for PTSD at post-treatment, compared to 46% of those who received CCT (Cohen et al., 2004).
Once intervention efficacy has been established, interventions are examined in more naturalistic settings that do not allow for strict control over conditions. Although effectiveness studies standardize the intervention being provided, there are fewer requirements for other conditions such as provider expertise, quality or materials needed to deliver intervention, and concurrent services (Singal et al., 2014). Studies that have examined effectiveness of TF-CBT in community mental health (CMH) settings have shown significant reductions among children in all four PTSD symptom domains (i.e., arousal, intrusion/re-experiencing, negative affect and cognition, avoidance), depressive symptoms, externalizing behaviors, and other mental health symptoms (Jensen et al., 2014; Konanur et al., 2015; Webb et al., 2014). Furthermore, TF-CBT produced greater symptom reduction than treatment as usual (TAU) for post-traumatic stress symptoms (Goldbeck et al., 2016; Jensen et al., 2014).

**Community Mental Health**

Once research has established successful treatment interventions through efficacy and effectiveness studies, there is still often a delay in widespread implementation within community settings (Cohen & Mannarino, 2008b). Some explanations that have been proposed for this delay include organizational structural barriers (e.g., negative attitudes toward manualized treatment approaches, insufficient funding to train clinicians, high caseloads and waiting lists), service provider barriers (e.g., perceived lack of fit with existing duties), and individual treatment barriers (e.g., individual and family needs including complex presenting problems, caregiver work demands, lack of transportation) (Aarons & Palinkas, 2007; Amaya-Jackson & DeRosa, 2007; Becker et al., 2017; Cohen & Mannarino, 2008b; McKay & Bannon, 2004; Wolitzky-Taylor et al., 2015). To better understand these barriers, it may be helpful to first understand the system of community mental health.
CMH facilities are public entities meant to serve a variety of needs for members of a given community, regardless of socioeconomic status and resources. According to Saxena and Sharan (2008), CMH care includes services to manage symptoms of mental health disorders that interfere with routine psychosocial functioning, in addition to providing crisis support, housing support, and more. CMH centers operate with the goal of improving community members’ quality of life by providing services that are cost-effective and respectful of human rights (Saxena & Sharan, 2008). According to the 2018 National Mental Health Services Survey, CMH treatment made up approximately 22% of mental health services in the United States, while outpatient services accounted for 40% of services (Substance Abuse and Mental Health Services Administration, 2018). Although CMH centers are typically known for offering outpatient mental health services, they are distinguished by the full scope of services they provide to their communities. In 2018, CMH centers served a median of 292 clients, second only in number to Veteran’s Affairs (VA) treatment centers. Of all mental health services in the United States—including outpatient mental health clinics, community mental health, psychiatric hospitals, residential programs, and more—approximately 58% of facilities offered services for youth 18 and younger. CMH centers had the largest proportion of services offered to youth (71% of CMH centers) and accepted the largest proportion of clients with Medicaid funding (SAMHSA, 2018). The most commonly offered services were individual psychotherapy, group therapy, and psychotropic medication management, with case management and suicide prevention services identified as the most common supportive services offered.

**Community Mental Health Treatment Barriers**

While CMH centers focus on implementation of services, rarely are they the developers of effective psychotherapy approaches to address mental health problems. The public nature and
scope of services provided through CMH typically lead to high caseloads with high acuity and little time and resources to attend to fidelity training in new treatments, even if validated by effectiveness studies. Another barrier that may prevent full implementation of effective treatments is attrition from services. Attrition rates tend to be much higher in effectiveness studies than in efficacy studies, a finding largely attributed to differences in inclusion criteria, control over factors of treatment delivery, and organizational resources (Becker et al., 2017; de Haan et al., 2013). In one recent meta-analytic review, attrition rates for efficacy studies averaged 28.4% (range = 16-50%), while attrition rates for effectiveness studies averaged 50% (range = 17-72%) (de Haan et al., 2013). Attrition rates in outpatient psychotherapy services are high and are higher still in CMH centers (Cohen et al., 2011; McKay & Bannon, 2004). Factors associated with attrition are important to understand because premature termination from psychotherapy may prevent participants from receiving the full benefits of treatment, thereby attenuating treatment gains such as symptom reduction.

Recent estimates of attrition in child outpatient mental healthcare range from 28-75% (de Haan et al., 2013; Warnick et al., 2012). Even research-based community treatment centers report attrition rates between 24-50% (Goldbeck et al., 2016; Jensen et al., 2014; Konanur et al., 2015; Webb et al., 2014). These estimates are consistent with other recent studies examining youth attrition from CMH services specifically. A study examining attrition in community-based wraparound services for low-income youth found an average attrition rate of just over 50% (Yohannan et al., 2017), and another study examining treatment engagement in a large community youth sample reported that 51.7% did not complete recommended treatment protocols (Lieneman et al., 2019). Studies examining attrition from trauma-focused child psychotherapy reveal similar rates ranging from 28% in efficacy studies (Deblinger et al., 2011)
to 76% in community samples (Tebbett, 2018; Walsh, 2019; Wamser-Nanney, 2019; Wamser-Nanney & Steinzor, 2017).

Because completion of psychotherapy is so essential to positive treatment outcomes, research efforts have attempted to identify conditions associated with clients leaving treatment before meeting treatment goals—an event referred to as *premature termination*, or *dropout*. Factors that may influence premature termination from psychotherapy consist of both specific treatment factors (i.e., use of psychoeducation, coping skills training) as well as nonspecific treatment factors (e.g., therapist warmth and positive attention; Overbeek et al., 2017). Factors that affect premature termination of child psychotherapy can be further categorized into three primary domains: child factors, family factors, and therapeutic factors (de Haan et al., 2013). *Child factors* include age and gender of child, race and ethnicity of child, symptom domains (i.e., internalizing or externalizing), severity of symptoms, type of trauma experienced, and peer influences; *family factors* include level of parent involvement in child’s therapy, marital status of parents, living arrangements, involvement with child welfare agencies, and intensity of caregiver needs; and finally, *therapeutic factors* include referral source, type of intervention, intervention duration, intervention intensity, treatment modality, treatment setting, and provider training level (Corcoran & Pillai, 2008; Chasson et al., 2013; de Haan et al., 2013; Dossett & Reid, 2019b; Gutermann et al., 2016; Lindstrom Johnson et al., 2018; McKay & Bannon, 2004; Newman et al., 2014; Silverman et al., 2008; Tebbett et al., 2018; Walsh, 2019; Wamser-Nanney, 2019; Wamser-Nanney & Steinzor, 2016; Warnick et al., 2012). Many studies have examined these various factors as potential treatment moderators that influence premature termination from child psychotherapy. While a few moderators have shown relatively consistent results across studies, other moderators have shown conflicting results.
For general youth mental health treatment, ethnocultural minority status (de Haan et al., 2018; Wamser-Nanney & Steinzor, 2016; Warnick et al., 2012) and high caregiver needs (such as caregiver mental illness and low SES; Dossett & Reid, 2019; Wamser-Nanney & Steinzor, 2016; Warnick et al., 2012; Yohannan et al., 2017) have shown consistent negative impacts on treatment completion. These factors tend to be highly correlated, with low SES often associated with lower education levels, single parenthood, and ethnocultural minority status. In contrast, caregiver attendance and participation in treatment are associated with greater likelihood of treatment completion for youth (Ormhaug & Jensen, 2018) and greater symptom reduction and treatment gains (Dowell & Ogles, 2010). Finally, CBT interventions are consistently associated with greater symptom reduction and treatment completion when compared to other interventions for youth (O'Keefe et al., 2018).

Other factors show less consistency in their effect on premature termination, such as age and symptom presentation. In some studies, age predicts premature termination, with different effects depending on how premature termination, or “dropout,” is defined. For example, Dossett and Reid (2019b) found that younger age predicted premature termination across five mental health treatment centers (N=625) from a dosage (i.e., need to complete a certain number of sessions) definition, whereas older age predicted premature termination from a needs-based (i.e., complex examination of child and family moderating factors influencing treatment engagement) definition. Older age predicted poorer treatment attendance and engagement in a school-based mental health program (Kronsberg & Bettencourt, 2020) and premature termination from outpatient psychotherapy at a Dutch community clinic (de Haan et al., 2015). In other studies, age seems to have little impact on treatment completion or outcomes (de Haan et al., 2013; Warnick et al., 2012; Weinstein et al., 2015). Results are also mixed for child symptom
presentation; some studies show that high levels of internalizing and externalizing symptoms predict premature termination (de Haan et al., 2013) and others find no effect of symptom presentation on treatment completion (Dossett & Reid, 2019b; Warnick et al., 2012).

Explanations for these mixed findings include differences in reporter (e.g., child, teacher, or parent), how treatment needs are defined (e.g., use of symptom checklists or other measures, diagnostic labels applied), and other research methods.

Examining treatment moderators is a complex process, and there are many more studies that investigate moderators for treatment gains (e.g., symptom reduction) than those that investigate moderators for treatment completion. Moderators also tend to be interactive and may influence the strength of other moderators; for example, higher caregiver stress may interfere with treatment attendance, which may be particularly impactful for younger children who rely more on caregivers’ participation in the treatment process.

To summarize, high attrition rates in community mental health services for youth are influenced by a number of factors, some of which are related to child and caregiver characteristics, and others that are associated with the setting and treatment provided. Although many characteristics have been identified as possibly contributing to premature termination from youth services, different contexts and study designs have revealed differential effects of these characteristics across studies, leading to unclear conclusions about what conditions best predict premature termination. Furthermore, due to the relative scarcity of research, even less clarity exists for premature termination from trauma-informed treatment for youth. It is important to examine these characteristics, as premature termination can prevent youth from experiencing the full benefits from psychotherapy. The current study hopes to contribute to these findings by examining how several of these identified factors, described below, may interact with varying
degrees of trauma exposure (using ACEs as a measure of trauma exposure) to predict completion of TAU in a youth CMH clinic.

**Factors Moderating Treatment Outcomes**

**Child Factors**

**Age**

Similar to research on general youth psychotherapy, results showing effects of age on completion of trauma-focused youth psychotherapy are mixed. Compared to general youth psychotherapy, older age is more consistently associated with greater symptom reduction (Danzi & La Greca, 2020; Gutermann et al., 2016; Newman et al., 2014) and better treatment attendance (Walsh, 2019) in trauma-focused interventions. Nonetheless, many studies find no effect of age on completion (Kane et al., 2016; Wamser-Nanney, 2019; Wamser-Nanney & Steinzor, 2017; Weiner et al., 2009; Yasinski et al., 2018), and at least one study found older age to be a predictor of premature termination (Ormhaug & Jensen, 2018).

Reviews and meta-analyses examining treatment moderators for trauma-exposed youth engaging in psychotherapy largely identify older age as a moderator of positive treatment outcomes. Older children have greater cognitive processing skills, which may facilitate engagement with psychotherapy, particularly narrative and processing components of trauma treatment (Danzi & La Greca, 2020). Older children may also exercise greater autonomy in the therapy room, preferring less caregiver involvement as a practice of independence or as a result of impaired caregiver-child relationships (Wright et al., 2019). Thus, the freedom to engage in psychotherapy on their own terms may be reinforcing and lead to increased treatment gains. Increased autonomy resulting from older age may additionally facilitate greater disengagement from caregiver challenges (e.g., caregiver mental illness, scheduling demands) that present
barriers to treatment. Results from studies showing no effects of age on treatment outcomes may be influenced by notable study characteristics, such as geographical location (Kane et al., 2016), high dropout rates that do not allow for adequate comparisons (Wamser-Nanney, 2019), and statistical issues such as insufficient cell counts to adequately perform analyses (Weiner et al., 2009). Other studies found that caregiver age may interact with client age to predict premature termination, with younger caregivers who have older children being particularly at risk (Eslinger et al., 2014).

**Symptom Presentation**

High and low levels of internalizing symptoms and high levels of externalizing symptoms predict premature termination in trauma-focused psychotherapy (Sprang et al., 2012; Tebbett et al., 2018; Walsh, 2019; Wamser-Nanney & Steinzor, 2016), although it should be noted that caregiver—but not youth—reports of symptom presentation were associated with premature termination. Low levels of internalizing behaviors in children may not sufficiently motivate youth and caregivers to attend psychotherapy consistently; thus, if treatment need is perceived as low, youth and caregivers are less likely to prioritize treatment completion. In contrast, high internalizing and externalizing behaviors may interfere with caregivers’ abilities to sufficiently motivate youth to attend appointments and implement treatment recommendations (Tebbett et al., 2018), albeit in different ways (e.g., high internalizing behaviors may lead to high levels of youth avoidance, and high externalizing behaviors may lead to high conflict between youth and caregivers). Youth with high levels of externalizing behaviors may also present challenges for therapists to build good rapport in early treatment sessions. Given that good therapeutic rapport has been consistently identified as a nonspecific treatment factor for successful psychotherapy, a lack of good rapport early in treatment may lead to premature termination (Zorzella et al., 2015).
Furthermore, specific diagnoses of major depressive disorder, oppositional defiant disorder (ODD), and PTSD were associated with higher risk for premature termination in a large study using a national dataset of over 2,500 children who participated in psychotherapy (Sprang et al., 2012). Interestingly, when individuals with these diagnoses completed treatment, they experienced some of the largest effect sizes for symptom reduction (Scheeringa et al., 2011). The finding that an ODD diagnosis predicts premature termination from psychotherapy is consistent with other literature on youth psychotherapy. Externalizing behavioral problems posed by children with ODD may contribute to caregiver distress that interferes with caregiver capacity to attend treatment and implement recommended behavioral strategies. Similarly, youth psychotherapy for PTSD may elicit uncomfortable emotions from caregivers that relate to reflection (whether accurate or inaccurate) and potential self-blame about their role in their child’s trauma exposure (Sprang et al., 2012).

The nature and type of trauma may also influence treatment completion, although there is little consensus on this data, as both single-incident traumas and multiple traumatic events have been associated with higher risk of premature termination (Chasson et al., 2013; Wamser-Nanney & Steinzor, 2016), and some studies have shown no effect for trauma type as a moderator of treatment outcome (Danzi & La Greca, 2020). Some of these mixed results may be influenced by the methodological rigor and design of each study, as suggested by some research groups (Gutermann et al., 2016; Newman et al., 2014).

**Family Factors**

**Caregiver Participation**

Previous research has largely supported the idea that caregiver involvement in psychotherapy for children contributes positively to a child’s successful course of treatment
(Cook et al., 2005; Corcoran & Pillai, 2008; Gutermann et al., 2016; Newman et al., 2014; Overbeek et al., 2017). Nonetheless, studies exist that show no significant effects of caregiver involvement on treatment (Kane et al., 2016; Lindstrom Johnson et al., 2018; Trask et al., 2011; Wamser-Nanney, 2019). Similar to other general youth psychotherapy research, higher caregiver needs as documented by the Child and Adolescent Needs and Strengths (CANS) assessment have predicted attrition from child psychotherapy (Dossett & Reid, 2019b).

Still other studies find that caregiver involvement has differential effects depending on target symptoms, such that caregiver involvement was effective in treatment of youth anxiety and depression but had no effect on PTSD symptoms (Silverman et al., 2008). Few studies have examined the role of caregiver participation on premature termination of psychotherapy in youth. One study examining engagement factors at initial treatment sessions found that caregivers’ participation in the first psychotherapy session significantly decreased later risk for premature termination of psychotherapy (Ormhaug & Jensen, 2018). Another study showed that greater disagreement between youth and caregiver report of youth pre-treatment anxiety symptoms (Wamser-Nanney, 2020) and greater disagreement about youth treatment goals (Brookman-Frazee et al., 2008) increased risk of premature termination.

It is important to note that there is much variability in how the roles of caregivers are defined as it relates to youth treatment engagement. Some studies examine indirect caregiver contributions to child engagement in psychotherapy, such as marital status and level of education, without evaluating direct caregiver engagement in their child’s psychotherapy (de Haan et al., 2013; Dossett & Reid, 2019b; Haine-Schlagel & Escobar Walsh, 2015; Wamser-Nanney & Steinzor, 2016; Warnick et al., 2012). Studies that have examined direct caregiver engagement in general youth psychotherapy have proposed that caregiver involvement in their
child’s psychotherapy leads to more successful child outcomes by way of teaching caregivers skills with which to manage child symptoms and helping caregivers reduce their own levels of distress (Cook et al., 2005; McKay & Bannon, 2004; Overbeek et al., 2017). Although there are many ways caregivers may participate in treatment, a study by Fawley-King et al. (2013) showed that the most common method of caregiver participation was meeting with the child’s therapist. In this study, over 79% of caregivers reported meeting with their child’s therapist, while only 54% of caregivers followed through with recommendations at home.

**Therapeutic Factors**

*Session Attendance*

There is little research that focuses on better understanding how the length and consistency of psychotherapy affects treatment outcomes among youth. In the adult literature, 13-18 sessions were recommended as the minimum number of psychotherapy sessions required for 50% of clients to improve; however, one review found that the median number of therapy sessions attended by over 6,000 clients across treatment settings and diagnoses was three (Hansen et al., 2002). Few studies have examined the significance of dose-response in youth psychotherapy, especially trauma-focused psychotherapy. TF-CBT, the most efficacious treatment for trauma-exposed youth, suggests completing the protocol in 12-25 sessions, although treatment gains were reported after as few as eight sessions (Deblinger et al., 2011).

Another finding in the adult literature is that psychotherapy clients with more severe presenting problems may experience slower rates of change, suggesting that longer treatment courses may be more beneficial for the most severely affected groups (Nordmo et al., 2020). This makes practical sense, as greater symptom severity may require increased time and effort for psychotherapeutic interventions to show benefit. This idea becomes particularly challenging as
applied to youth, who have limited control over their environments and may face greater barriers to their ability to effect change. As such, consistency of treatment may play a large role in successful treatment gains, which may directly affect treatment completion.

**Summary**

In this study, child factors (i.e., age and symptom presentation), family factors (i.e., caregiver participation), and treatment factors (i.e., session attendance) are examined. Although results in the current literature are mixed, older age and low levels of externalizing symptoms are associated with higher rates of treatment completion in trauma-focused interventions. Determining the impact of caregiver participation is difficult, as definitions of participation vary across research studies, and researchers have found this aspect of treatment difficult to measure directly. There is support to suggest that caregiver involvement in child psychotherapy contributes to greater treatment success; however, there is little research that examines caregiver involvement as a moderating factor in treatment completion, especially for trauma-focused psychotherapy. Studies examining length of treatment show that greater symptom severity may require longer courses of treatment for a positive effect, but many of the studies in the trauma-focused intervention literature examine length of treatment as it applies to manualized interventions, such as TF-CBT; thus, there were no studies that examined length of treatment in TAU.

By examining how child age, symptom presentation, attendance, and collateral participation interact with levels of trauma exposure (via ACEs) to predict completion of trauma-informed youth psychotherapy in the current study, I hope to contribute to a better understanding of various conditions that may prevent youth from experiencing the full positive effects of psychotherapy.
Current Study

This study sought to understand what factors predict child psychotherapy treatment completion for trauma-exposed youth in a community mental health setting, using electronic medical record (EMR) data from a clinical database. More specifically, this study aimed to identify child, caregiver, and therapeutic factors in delivery of treatment as usual (TAU) that best predict discharge status (i.e., treatment completion compared to premature termination) for children engaging in psychotherapy who have experienced early childhood adversity, as identified by their ACEs score. As such, this study had three goals: (1) to investigate the association among different levels of ACEs scores and symptom presentation, (2) to determine how initial ACEs scores impact treatment completion for children, and (3) to determine how various treatment factors interact with ACEs scores to predict psychotherapy treatment completion for children.

Specifically, it was hypothesized that:

1) ACEs scores would be associated with a wide range of clinical diagnoses, with higher rates of comorbidity (i.e., more assigned diagnoses) associated with higher ACEs scores.

2) Higher ACEs scores would generally predict higher rates of premature termination.

3) Client age would moderate the relation between ACEs scores and treatment completion.

4) Consistency of session attendance (i.e., percentage of scheduled sessions attended) would moderate the relation between ACEs scores and treatment outcomes.

5) Frequency of caregiver attendance during psychotherapy sessions (i.e., percentage of sessions attended with youth) would moderate the relation between ACEs scores and treatment completion.
Two hypotheses were removed from data analysis: 1) CBT interventions will moderate the relation between ACEs scores and treatment completion, and 2) length of treatment will moderate the relation between ACEs scores and treatment completion. The first was removed because the clinic where the study was conducted primarily uses a CBT treatment approach, and so there were no comparisons to be made between treatment approaches. The second was removed because it was determined that length of treatment may not take into consideration multiple other factors and barriers to treatment, thus not yielding accurate information about its role in services.

**Methods**

**Setting**

The site where this research was conducted is a CMH clinic located in an urban community in upstate New York. The clinic houses the county’s primary child mental health department, which serves the county’s population of 158,714 community members (United States Census Bureau, 2019).

All demographic data described henceforth is derived from U.S. Census Bureau reports from 2019. Based on population estimates, approximately 19% of the county’s residents were under the age of 18. The county was comprised of 82% Caucasian residents, 7% Black or African American, 5% Hispanic or Latino, and 3% Asian American. Approximately 91.6% of the county’s population obtained at minimum a high school education level, with 35% achieving a college degree or higher. Median income was $71,574, and 12% of the population were reportedly living below the federal poverty line (United States Census Bureau, 2019).

The clinic provides individual and family counseling, medication management, and case management to county residents up to age 21 and coordinates a variety of social services.
Individual and family counseling is delivered using a CBT treatment approach, with elements of family therapy integrated as needed. As of June 2020, clinic staff was comprised of two staff psychiatrists, two mental health nurse practitioners, one staff licensed psychologist, six licensed social workers, three licensed mental health counselors, several case managers, and a limited number (less than five) of trainees who provide psychotherapy. Clinicians attended weekly staff meetings and weekly or biweekly individual supervision with either the staff psychologist or the clinical director. Continuing education was a requirement for employees of the clinic, which was fulfilled either through in-house staff trainings or community education events. The clinic currently serves approximately 1,200 clients per year.

**Participants**

This study used existing data from the clinic’s *myAvatar* EMR during a five-year span between November 2014 and November 2019. The start date was determined because this is the time period during which the clinic began documenting child client ACEs scores. Inclusion criteria for the current study were 1) an age of 5-17 years old upon admission to treatment; 2) attendance of a minimum of three psychotherapy sessions; 3) documented ACEs score of at least one; 4) discharge from treatment between November 2014 and November 2019. Treatment completion is determined by the presence of a documented discharge summary, which includes the clinician’s judgment of treatment success.

According to the agency, approximately 573 distinct episodes of care with a documented ACEs score were identified between November 2014 and November 2019. Some individuals engaged in multiple episodes of psychotherapy during this time period; in these cases, the earliest episode of care was included in the study to reduce effects from previous episodes of care. Of these, 397 distinct clients within the designated age range qualified for inclusion in the
current study. Forty-two clients were removed from the dataset because their discharge status did not fall into the identified categories of examination\(^3\). In order to adequately perform statistical analyses, another nine clients were removed from analyses due to low categorical frequencies. These included three transgender clients, two clients who had more than four assigned diagnoses, and four clients who were the only clients with primary diagnoses of a psychotic disorder, reactive attachment disorder, a developmental disorder, and conduct disorder.

Of the final 346 participants that were included in the study, 163 (47%) identified as male, and 183 (53%) identified as female. Mean age of participants was 11.88 (\(SD = 3.43\)), with a median of 12.39. Racial identity was proportionately similar to the city’s 2018 Census, with 258 participants identifying as White/Caucasian (75%), 44 identifying as Black/African American (13%), and only one participant identifying as Latino/a (0.3%). Participant demographic information appears in Table 1.

A power analysis (using G*Power software; Faul et al., 2007) was completed for this study. The analysis indicated that at least 155 participants would need to be included in order to have the necessary power (.80) to detect a small to moderate effect (\(R^2 = .20\), \(OR = 1.6\)) in a logistic regression analysis. Hence, the current study was adequately powered.

**Procedures**

All study procedures were reviewed and approved by the University at Albany’s Institutional Review Board (IRB). Upon university IRB approval, the graduate student researcher collaborated with the Information Technology (IT) department at the clinic to retrieve select data from the EMR database. The researcher reviewed components of each client’s chart to gather select information needed for analyses in the current study (see below for details). A clinician-

\(^3\) Of these, the primary discharge category assigned was “Referred to another provider.”
judgment definition of premature termination for relevant cases was used in the current study (Dossett & Reid, 2019a).

**Measures**

**Adverse Childhood Experiences (ACEs)**

The Adverse Childhood Experiences questionnaire consists of ten questions that inquire about various aspects of child maltreatment and household dysfunction prior to the age of 18 (Felitti et al., 1998). The clinic added two questions to the original ten ACEs items, bringing the total ACEs items to 12. A copy of the complete adapted ACEs measure used by the clinic can be found in Appendix C. Questions were answered by children’s caregivers during the intake evaluation. Children with documented ACEs scores of 0 could not be included in the current study, because a documented ACEs score of 0 could reflect a child not experiencing any of the 12 ACEs on the questionnaire or may alternatively represent the lack of a documented ACEs score.

Documented ACEs scores between 1-12 served as the primary independent variable in all analyses. The majority of research to date analyzes ACEs scores divided into two ranges: scores of 0-3 and scores of 4 or more, as was performed in the original ACEs studies (Anda et al., 2006; Bright et al., 2015; Felitti et al., 1998; Gillespie & Folger, 2017; CDC, 2019). However, some studies have examined ACEs scores as continuous (Brown et al., 2009; Dong et al., 2004) and others still have created alternative categories to best fit new research questions (Bethell et al., 2014; Blodgett, 2014; Brown et al., 2009; Chapman et al., 2004). To remain consistent with literature while also attempting to accurately capture potential differences among a broader range of ACEs, ACEs in this study were examined in three ways: 1) as a dichotomous categorization of
scores 1-3 and 4-12; 2) as a continuous variable of scores 1-12; 3) and divided into three discrete ordinal ranges: ACEs scores of 1-3, scores of 4-7, and scores of 8-12.

**Psychosocial Assessment**

Each child client enrolled in psychotherapy at the CMH clinic requires an extensive psychosocial assessment to be completed before the fourth psychotherapy visit. Information collected from the documented psychosocial assessment includes client age, race, gender, previous treatment, other concurrent therapeutic services, external medication management, and documented ACEs score. Age was examined as a moderator variable. Race, gender, previous treatment, other concurrent therapeutic services, and concurrent medication management were examined as potential covariates.

**Discharge Summary**

Discharge status is determined by the treating therapist. At the conclusion of care, the provider completes a discharge summary that indicates reason for discharge and date of termination. In the discharge summary, the provider indicates one of the following discharge codes:

- “sufficient progress made/goals achieved”
- “client discontinued, further treatment recommended”
- “referred to another provider”

Only the first two discharge codes were used in the current study as a dichotomous outcome variable in statistical analyses. “Sufficient progress made/goals achieved” was reconceptualized as “treatment completion,” and “Client discontinued, further treatment recommended” was r reconceptualized as “premature termination.” Premature termination was
then designated a categorical value of 0 and used as the reference category in statistical analyses, and treatment completion was designated a categorical value of 1.

**Attendance Inquiry**

Information from this report includes timing variables related to the client’s course of treatment, including total sessions scheduled, total sessions attended or cancelled, frequency of sessions, and percentage of session attendance out of total scheduled sessions. Concurrent in-house medication management is also reflected in this report. Percentage of session attendance was examined as a moderator variable, and concurrent medication management was examined as a potential covariate. Due to variability in session frequency among clients, length of treatment was excluded from analyses.

**Psychotherapy Progress Notes**

Each psychotherapy session requires a progress note to be completed within 48 hours of session completion with several key pieces of information to be included by checking applicable boxes. Identification of collateral participants (e.g., child only, siblings, parents, other care providers) were collected from each progress note and examined as moderator variables. Frequency of collateral attendance was extracted from progress notes and examined as a moderator variable.

**Data Analysis**

All data were analyzed using SPSS version 26. Statistical significance was predetermined at the $\alpha = 0.05$ level. Univariate, descriptive statistics (i.e., means, medians, ranges, standard deviations, and frequencies) were estimated using available data. Univariate outliers were assessed, and nine clients (described previously) were removed from analyses due to univariate
outlier status that resulted in low cell frequencies for chi-square and logistic regression analyses. There were no instances of missing data for variables in the final sample.

Results

ACEs scores were fairly high in this sample ($M = 4.12, SD = 2.18, \text{median} = 4$), although the most frequent score reported among participants was one. Over half (53.5%) of the sample had an ACEs score of four or more. The most common ACEs categories—experienced by more than half of the sample—were, in order: parental separation or divorce (69%), CPS involvement (63%), and family mental illness (55%). Participant ACEs data appear in Tables 2 and 3.

Preliminary analyses were conducted to examine the relations between potential covariates and the discharge status. The covariates for the current study were examined using chi-squared tests. The results of these analyses were all non-significant, indicating that gender ($X^2(1) = .46, p = .52$), race ($X^2(2) = 2.13, p = .37$), previous treatment ($X^2(2) = 3.30, p = .20$), concurrent medication management ($X^2(2) = 1.17, p = .70$), and other concurrent therapeutic services ($X^2(1) = .02, p = .90$) had independent relations with the outcome variable (discharge status). Subsequently, they were not entered into analyses as covariates.

Relations Among Study Variables

Table 6 shows bivariate correlations that were examined among continuous variables of interest: ACEs score, age, percentage of attendance, and percentage of collateral attendance. ACEs score was positively correlated with age, indicating that higher ACEs were associated with older age. ACEs score was not correlated with either percentage of attendance or percentage of collateral attendance. Age was strongly negatively correlated with percentage of collateral attendance, such that older age was associated with lower levels of collateral attendance. Associations among categorical variables are included in hypothesis testing results.
Hypothesis Testing

**Hypothesis 1:** **ACEs scores will be associated with a wide range of clinical diagnoses, with higher ACEs scores associated with higher rates of comorbidity.**

To determine whether higher ACEs scores were associated with greater diagnostic comorbidity, chi-squared tests and analysis of variance (ANOVA) were performed on each of the three categorizations of ACEs and number of diagnoses assigned. Monte Carlo simulations to compute Fisher’s exact test were used on chi-squared analyses in which some cell counts were low (i.e., <5). Chi-squared tests revealed no associations between number of diagnoses assigned and ACEs scores, categorized dichotomously ($X^2(3) = 4.03, p = .25$) and into three levels ($X^2(6) = 5.19, p = .51$). Therefore, ACEs scores were determined to be independent of diagnostic comorbidity. ANOVA was performed on continuous ACEs scores and number of diagnoses; likewise, no significant differences emerged among groups ($F(11) = 1.76, p = .06$).

**Hypothesis 2:** **Higher ACEs scores will generally predict higher rates of premature termination of treatment.**

To determine whether higher ACEs scores were positively associated with premature termination of treatment, three independent simple logistic regressions for each categorization of ACEs (i.e., dichotomous, three-level, and continuous) were computed. For this analysis, discharge status was entered into SPSS as the dependent variable, and ACEs scores were entered as the covariate (independent variable).

For dichotomous ACEs, the logistic regression model was not statistically significant ($B(1) = .004, OR = 1.00, p = .99, 95\% CI [.66-1.53]$). Furthermore, the model revealed a Nagelkerke $R^2$ value of .000 related to the variance of discharge status attributable to ACEs scores. For the three-level categorization of ACEs, the logistic regression model was also not
statistically significant ($B(1) = -0.12$, $OR = 0.88$, $p = .44$, 95% CI [.64-1.21]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .002 related to the variance of discharge status attributable to ACEs scores. Hosmer and Lemeshow values were also not significant ($p = .13$).

For continuous ACEs, the logistic regression model was not statistically significant ($B(1) = -0.02$, $OR = 0.98$, $p = .68$, 95% CI [.90-1.07]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .001 related to the variance of discharge status attributable to ACEs scores. Hosmer & Lemeshow values were also not significant ($p = .14$). Thus, ACEs scores did not significantly predict treatment completion.

**Hypothesis 3: Client age will moderate the relation between ACEs scores and treatment completion.**

To determine whether client age had a moderating effect between ACEs scores and treatment completion, three independent sequential logistic regressions for each level of ACEs (i.e., dichotomous, three-level, and continuous) and age were computed. The lowest ACEs categories (1-3; 1-3; and 1) and the oldest age category (17) were used as the reference groups for analyses. For this analysis, discharge status was entered into SPSS as the dependent variable; ACEs scores and age were entered as covariates (independent variables) in Block 1; and the interaction term for ACEs x Age was entered as a covariate (independent variable) in Block 2.

For dichotomous ACEs and age, the logistic regression model was not statistically significant ($B(1) = -0.07$, $OR = 0.93$, $p = .25$, 95% CI [.82-1.05]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .02 related to the variance of discharge status attributable to ACEs scores and age. Hosmer and Lemeshow values were also not significant ($p = .99$). For three-level categorical ACEs and age, the logistic regression model was also not statistically significant ($B(1) = -0.07$, $OR = 0.93$, $p = .15$, 95% CI [.84-1.03]). Furthermore, the model revealed a
Nagelkerke $R^2$ value of .03 related to the variance of discharge status attributable to ACEs scores and age. Hosmer and Lemeshow values were not significant ($p = .54$). For continuous ACEs and age, the logistic regression model was not statistically significant ($B(1) = -.02$, $OR = .98$, $p = .11$, 95% CI [.95-1.00]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .02 related to the variance of discharge status attributable to ACEs scores and age. Hosmer and Lemeshow values were not significant ($p = .58$). Furthermore, there were no main effects for age on discharge status ($B(1) = .03$, $OR = 1.0$, $p = .63$, 95% CI [.91-1.16]). Thus, client age had no effect on the relation between ACEs and treatment completion.

**Hypothesis 4: More consistent session attendance will moderate the relation between ACEs scores and treatment completion.**

To determine whether more consistent attendance in treatment had a moderating effect between ACEs scores and treatment completion, three independent sequential logistic regressions for each level of ACEs (i.e., dichotomous, three-level, and continuous) and therapy attendance based on percentage of sessions attended were completed. The lowest ACEs categories (1-3; 1-3; and 1) and the lowest attendance category (33.33%) were used as the reference groups for analyses. For this analysis, discharge status was entered into SPSS as the dependent variable; ACEs scores and attendance were entered as covariates (independent variable) in Block 1; and the interaction term for ACEs x Attendance was entered as a covariate (independent variable) in Block 2.

For dichotomous ACEs and percentage session attendance, the logistic regression model was not statistically significant ($B(1) = -.001$, $OR = 1.00$, $p = .96$, 95% CI [.97-1.03]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .12 related to the variance of discharge status attributable to ACEs scores and percentage of session attendance. Hosmer and
Lemeshow values were not significant ($p = .49$). The model revealed a significant main effect for percentage of session attendance on treatment completion ($B(1) = .04, \ OR = 1.05, \ p < .01, \ 95\% \ CI \ [1.02-1.07]$). Thus, while percentage of attendance had no effect on the relation between ACEs and treatment completion, attendance itself had a significant main effect on treatment completion; however, results should be interpreted in the context of a poor model fit.

For three-level categorical ACEs and categorical percentage session attendance, the logistic regression model was not statistically significant ($B(1) = .01, \ OR = 1.01, \ p = .62, \ 95\% \ CI \ [.98-1.03]$). Furthermore, the model revealed a Nagelkerke $R^2$ value of .13 related to the variance of discharge status attributable to ACEs scores and percentage of session attendance. Hosmer and Lemeshow values were also not significant ($p = .66$). Thus, percentage of attendance had no effect on the relation between ACEs and treatment completion.

For continuous ACEs and percentage session attendance, the logistic regression model was not statistically significant ($B(1) = .002, \ OR = 1.00, \ p = .50, \ 95\% \ CI \ [1.00-1.01]$). Furthermore, the model revealed a Nagelkerke $R^2$ value of .12 related to the variance of discharge status attributable to ACEs scores and percentage of session attendance. Hosmer and Lemeshow values were also not significant ($p = .76$). The model revealed a significant main effect for percentage of session attendance on treatment completion ($B(1) = .04, \ OR = 1.04, \ p < .05, \ 95\% \ CI \ [1.00-1.07]$). Thus, while percentage of attendance had no effect on the relation between ACEs and treatment completion, attendance itself had a significant main effect on treatment completion; however, results should be interpreted in the context of a poor model fit.
Hypothesis 5: Family involvement in therapeutic treatment will moderate the relation between ACEs scores and treatment outcomes.

To determine whether family involvement in treatment had a moderating effect between ACEs scores and treatment completion, three independent sequential logistic regressions for each level of ACEs (i.e., dichotomous, three-level, and continuous) and collateral attendance based on percentage of sessions attended were computed. The lowest ACEs categories (1-3; 1-3; and 1) and the lowest collateral attendance category (0%) were used as the reference groups for analyses. For this analysis, discharge status was entered into SPSS as the dependent variable; ACEs scores and collateral attendance were entered as covariates (independent variables) in Block 1; and the interaction term for ACEs x Collateral Attendance was entered as a covariate (independent variable) in Block 2.

For dichotomous ACEs and percentage collateral attendance, the logistic regression model was not statistically significant (B(1) = .003, OR = 1.00, p = .64, 95% CI [.99-1.01]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .002 related to the variance of discharge status attributable to ACEs scores and percentage of collateral session attendance. Hosmer and Lemeshow values were also not significant (p = .44). For three-level categorical ACEs and percentage collateral attendance, the logistic regression model was not statistically significant (B(1) = -.001, OR = 1.00, p = .89, 95% CI [.99-1.00]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .01 related to the variance of discharge status attributable to ACEs scores and percentage of collateral session attendance. Hosmer and Lemeshow values were also not significant (p = .48). For continuous ACEs and percentage collateral attendance, the logistic regression model was not statistically significant (B(1) = .00, OR = 1.00, p = .98, 95% CI [.998-1.002]). Furthermore, the model revealed a Nagelkerke $R^2$ value of .001 related to
the variance of discharge status attributable to ACEs scores and percentage of collateral session attendance. Hosmer and Lemeshow values were also not significant \( (p = .15) \). Thus, percentage of collateral attendance had no effect on the relation between ACEs and treatment completion.

**Discussion**

This study sought to clarify how factors of child psychotherapy may interact with ACEs to predict treatment completion. By studying these factors in a CMH clinic, this study aimed to provide an ecologically valid study that could examine best practices in TAU for children with traumatic histories. This study hypothesized that 1) ACEs scores would be associated with a wide range of clinical diagnoses, with higher rates of comorbidity associated with higher ACEs scores; 2) higher ACEs scores would generally predict higher rates of premature termination; 3) client age would moderate the relation between ACEs scores and treatment completion; 4) more consistent attendance (as measured by percentage of scheduled sessions attended) would moderate the relation between ACEs scores and treatment completion; and 5) frequency of collateral attendance during psychotherapy sessions (as measured by percentage of sessions attended by a caregiver or collateral adult) would moderate the relation between ACEs scores and treatment completion.

Two additional hypotheses were removed based on information available in the sample. One initial hypothesis aimed to examine how ACEs may interact with different treatment approaches to influence treatment completion. However, EMR review of the data revealed that CBT was used in nearly every episode of care in the sample, with family therapy models used at times in combination with CBT. Therefore, there was not sufficient variability in treatment approaches to make comparisons. A second hypothesis aimed to examine how length of treatment may interact with ACEs to influence treatment completion. However, frequency of
scheduled attendance varied according to individual client and family needs, such that some clients were scheduled for weekly appointments, others for biweekly or even monthly appointments; this was not a dose variable per se. Additionally, premature termination is likely associated with shorter length of treatment compared to treatment completers. Thus, it was determined that consistency of attendance would reveal more meaningful information than length of treatment, which was a more difficult variable to interpret meaningfully.

The results of this study did not support the proposed hypotheses, but important information was revealed about ACEs during childhood and their relation to treatment attendance and engagement. Though the study examined EMR charts of clients between ages 5-17, much of the sample fell within the older age range \((M = 11.88; 54\% \text{ were ages 12-17})\). ACEs scores were fairly high \((M = 4.12)\), with more than half (53.5\%) of the sample having an ACEs score of four or more. Compared to other community studies of ACEs, this rate of ACEs is higher than rates for adults in the general population and similar to rates for adults in clinical populations. ACEs were also significantly correlated with age, such that older age was associated with higher ACEs scores. Children receiving mental health services in this community may have a high risk for ACEs, with ACEs exposure accumulating over time. With such a high rate of ACEs exposure in the sample, it might be expected that children in the sample would need more intensive and/or multiple services. In fact, 50\% of the sample had engaged in psychotherapy in the past, and 27\% were receiving additional supports (e.g., educational, therapeutic, and/or legal) outside of psychotherapy. The most common mental health diagnoses were mood disorders (usually major depressive disorder; 23\%), followed by adjustment disorder (19\%). Despite high rates of ACEs, only 14\% were diagnosed with PTSD as their primary diagnosis. This is consistent with literature citing relatively low rates of PTSD among traumatized youth samples.
and higher rates of other disorders that may better account for trauma-related symptom presentation among youth. The most common ACEs categories endorsed were related to family dysfunction (parental separation or divorce, CPS involvement, and family mental illness) rather than child maltreatment; in fact, physical abuse (22%), neglect (11.5%) and sexual abuse (9%) were some of the lowest ACEs categories endorsed. Psychological abuse (33%) and neglect (32%) were experienced by about a third of the sample. However, it should be considered that caregivers completed the ACEs questionnaire for their children; thus, rates of ACEs and the types of categories endorsed may be restricted to types of ACEs of which caregivers have knowledge or may be affected by caregiver perception and social desirability. Interestingly, although CPS involvement in the sample was high (63%), 87% of children lived with at least one biological parent, and 68% had at least one consistent primary collateral person, usually the child’s mother (60%). Collateral attendance was also fairly high, with a third attending between 50-74% of psychotherapy sessions, and 27% attending all sessions.

Although ACEs scores were not associated with treatment completion, important information about the role of ACEs in psychopathology and engagement in psychotherapy emerged. First, ACEs were not associated with diagnostic comorbidity, such that the number of ACEs reported was not associated with more complex clinical presentations in the sample studied. Furthermore, ACEs did not influence premature termination from treatment, nor did they interact with other treatment factors—such as age, attendance, or collateral participation—to influence treatment completion or premature termination. Despite this, consistent attendance emerged as a significant predictor of treatment retention, albeit in the context of a poorly fitting statistical model.
The finding that higher ACEs scores were not associated with diagnostic comorbidity is somewhat surprising. Ample research has revealed associations between early childhood trauma (Green et al., 2010; Li et al., 2016; Lindert et al., 2014) and ACEs specifically (Chapman et al., 2004; Edwards et al., 2003) with an array of mental health disorders in adulthood. Furthermore, ACEs have been associated with more severe presentations in adults with mood disorders, including more suicide attempts and earlier onset of psychiatric hospitalizations (Lu et al., 2008). Although studies examining the associations between childhood adversity and mental health tend to focus on adult populations, reporting retrospective information, there is support that higher ACEs are associated with mental disorders with earlier onset (Green et al., 2010), and higher ACEs in early childhood (ages three to five) were associated with greater behavioral problems and lower adaptive functioning skills (Kerker et al., 2015). However, no study to date has specifically examined the association between ACEs and diagnostic comorbidity, and so direct comparisons are limited.

The finding that ACEs did not influence treatment completion, either alone or as an interaction with other psychotherapy factors, is also surprising. To date, there is no research that directly examines the role of ACEs on psychotherapy engagement or completion, although there are limited studies that examine the link between ACEs and engagement in other services. Steinke and Derrick (2018) found that higher ACEs scores predicted greater engagement in treatment, increased readiness for change, and greater bonds with staff in a youth residential facility, based on youth self-report. Alternatively, higher ACEs and lower levels of resilience were associated with lower rates of school and medical engagement, according to caregivers who participated in the 2011-2012 NSCH (Bethell et al., 2014). Although these results are interesting, these studies measured different domains of engagement using different reporters (i.e., youth
report versus caregiver report). As such, these results are difficult to generalize to the current study, and replication is needed to support conclusions. Thus, the influence of ACEs on treatment outcomes is largely unknown. Because ACEs were evaluated in childhood in the current sample, it is a reasonable assumption that some of the environmental factors associated with ACEs (i.e., parental incarceration, parental separation, homelessness, CPS involvement, and even abuse/neglect) were present at the time of the study and may have impacted the mental health functioning and treatment engagement of both child and caregiver. Thus, the finding that ACEs did not influence treatment completion may be confounded by the presence of both historical and current and/or ongoing ACEs.

Results from this study are nevertheless encouraging, in that TAU can still be sufficiently engaging for youth receiving mental health services, regardless of ACEs scores. For example, the finding that high ACEs did not lead to higher rates of premature termination as predicted shows that the clinic where this study was conducted retains child clients with high ACEs extraordinarily well. In fact, rates of premature termination were not significantly higher for youth with high ACEs scores than for youth with low ACEs scores. Thus, efforts should focus on engagement factors that increase client and collateral participation in treatment.

Results revealed a main effect of attendance on treatment completion, such that more consistent attendance was associated with lower rates of premature termination. This finding is consistent with other studies examining attendance factors in child and community mental health treatment (Lee et al., 2019; Nock & Ferriter, 2005). This further supports the idea that efforts should be made to attend to engagement factors early on, and that clinicians should proactively address attendance issues as they occur in order to increase the odds that children and families remain in treatment to receive beneficial services.
ACEs research to date has not confirmed a best method for categorizing ACEs to be used as a predictor variable in studies. In an effort to clarify whether different methods of ACEs categorization influenced model fit in statistical analyses or relation to the outcome variable, ACEs were examined as a predictor variable in three ways: continuous, dichotomized into ACEs scores below four and ACEs scores above four, and categorized into three levels: ACEs scores 1-3, 4-7, and 8-12. Significant differences in ACEs categorization did not emerge, indicating that categorization did not influence model fit nor statistical results as they related to outcome or moderator variables. All results using ACEs remained nonsignificant, although the proximity to significance at the alpha level of .05 shifted slightly, with the three-level categorization model emerging as a slightly better-fitting model in the examination of ACEs and attendance. This suggests that the three-level model may be a better fit for these types of research questions than other methods. However, further research is needed to confirm this hypothesis.

There were several strengths identified in this study. First, the sample size was more than sufficient to determine a small to moderate effect for the research questions. This reduces the likelihood that nonsignificant results can be attributed to a Type II error. Secondly, this study is the first known study to examine the effects of ACEs on psychotherapy retention and completion for youth in a community mental health clinic. The use of a more objective measure of trauma exposure—rather than its impact on symptoms—is important, particularly because trauma is associated with a wide range of symptoms and diagnoses.

**Limitations**

There are limitations to this study that may have contributed to the results. First, the operationalization of premature termination, or commonly “dropout,” is not consistent across treatment literature. There have been several definitions of premature termination identified,
including clinician judgment, session adherence (i.e., treatment “dosage”), and needs-based. Although the manner in which premature termination in this study was operationalized most closely aligns with the clinician judgment definition—which is also the most commonly used definition for dropout from community services—the factors that play a role in this method of determining termination may also vary from clinic to clinic, and even from clinician to clinician. This leaves a significant margin of error that complicates research design, as determination of discharge may not map neatly onto research terms or methods. The addition of a clinician-level variable may have helped to reduce the variability in this area, but clinician-level variables were not available to examine in the current study.

Statistical models in this study were relatively poorly fitting, with low $R^2$ values. This may indicate the presence of other variables that were more crucial to understanding the relation between ACEs exposure and psychotherapy completion. This study was also based on EMR data, and researchers did not have a direct influence on data collected in EMR. Although these considerations enhanced the ecological validity of the study for examining TAU in a CMH setting, this design may have prevented the investigation of variables that may relate more directly to ACEs and outcomes. Furthermore, because the clinic providing the data used a primarily CBT approach, differences in treatment approaches could not be examined. CBT has been identified as a highly effective psychotherapy, so it is possible that the relatively high rates of retention for a sample with such high ACEs were at least partially attributed to the clinic’s CBT approach; however, due to limitations in available data, the influence of CBT on treatment completion could not be examined.

Finally, the ACEs measure used in this study was modified from the original ACEs by adding two questions (i.e., CPS involvement and homelessness), yet it kept the original format of
questions that were targeted for adults reporting retrospectively on childhood experiences. The phrasing of questions, then, may not have been suitable for this sample, which relied primarily on caregivers’ reports of their child’s experiences. Caregivers’ responses were limited to the knowledge they held about their child’s experiences and may have also been subject to social desirability bias; in other words, caregivers may have been hesitant to report on adverse experiences of their child that may reflect poorly on themselves. Thus, this measure may not have been the best measure for evaluating ACEs in childhood, as reported by caregivers, which may have, in turn, influenced results.

**Future Directions**

Several mechanisms have been proposed that give more context to the associations between ACEs and psychological outcomes. Research suggests, for example, that emotion regulation, attachment, relationship security, and even perceived discrimination may mediate how ACEs influence mental health. Research also shows that present life circumstances may interact with a history of ACEs to influence health outcomes. Thus, there may be many more factors in a child’s environment and in a therapeutic setting that more directly relate to this relation than were adequately captured in the current analyses. This study was an important first step in examining the ways that levels of exposure to adverse childhood experiences may impact an individual’s engagement with psychotherapy. Given the finding that consistent attendance may predict psychotherapy completion, future studies should explore what child and family factors may influence attendance, and efforts should be made to reduce identified attendance barriers. In addition to better understanding child and family factors related to attendance, future research should continue to focus efforts on therapeutic engagement factors—such as degree of therapeutic rapport and warmth, client-clinician demographic matching, and agreement on
treatment goals and methods—and how those factors of engagement may be influenced by child and even caregiver ACEs.

Clinician variables may be an important next step for better understanding the relation between ACEs and treatment engagement. Individual clinicians may vary in their approach to psychotherapy, even if using the same basic treatments (e.g., CBT) as their colleagues. Clinicians also vary widely in the way they perceive or classify discharge from psychotherapy, or even in the time it takes to initiate discharge from the first missed contact with clients and caregivers. It is also possible that the relation between ACEs and treatment factors may be different in children and adults; thus, future studies may examine these relations in adult populations or even different settings. Finally, an item-level analysis of specific ACEs categories may reveal more information about the ways ACEs affect psychotherapy engagement and outcomes, as different types of ACEs may be differentially associated with outcomes (Giovanelli, 2018).

ACEs research originated in the field of public health, and for years ACEs assessment was largely restricted to medical and public health research and practice. ACEs became an important bridge between physical and mental health, and over time, ACEs have become more integrated into psychological research and treatment. Currently, psychological research on childhood trauma is split into ACEs research, research on general and specific types of child maltreatment, and research focused on diagnostic labels such as PTSD. All of these domains are connected by a common thread: childhood traumatic exposure. Unfortunately, the specific variables and terminology that may differ among these specialized domains can be divisive or neglected by researchers in another highly specific domain (e.g., research focused on treatments for PTSD may not consider ACEs, or ACEs-focused interventions may not borrow best practices from efficacious psychotherapy treatments such as TF-CBT). This lack of integration and
resource-sharing may lead to divisions in assessment and practice, with implications for public policy that neglect important aspects of child trauma exposure. In short, the current literature for related aspects of childhood trauma is not well-integrated. An important future direction for the field of childhood trauma is to better integrate ACEs research into diagnostic research on childhood trauma in order to create a more united pathway to intervention and policy.
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### Table 1

**Study Participant Demographic Characteristics**

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<td>12-17 years old</td>
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### Table 2

**ACEs Scores**

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<td>4 or more</td>
<td>188</td>
<td>53.5</td>
</tr>
<tr>
<td>ACEs Category</td>
<td>n</td>
<td>% of Sample</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Parent Separation/Divorce</td>
<td>239</td>
<td>69</td>
</tr>
<tr>
<td>CPS Involvement</td>
<td>218</td>
<td>63</td>
</tr>
<tr>
<td>Family Mental Illness</td>
<td>190</td>
<td>55</td>
</tr>
<tr>
<td>Caregiver Substance Abuse</td>
<td>146</td>
<td>42</td>
</tr>
<tr>
<td>Psychological Abuse</td>
<td>115</td>
<td>33</td>
</tr>
<tr>
<td>Psychological Neglect</td>
<td>110</td>
<td>32</td>
</tr>
<tr>
<td>Parental Incarceration</td>
<td>103</td>
<td>30</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>102</td>
<td>29</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>75</td>
<td>22</td>
</tr>
<tr>
<td>Homelessness</td>
<td>56</td>
<td>16</td>
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<tr>
<td>Physical Neglect</td>
<td>40</td>
<td>11.5</td>
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<tr>
<td>Sexual Abuse</td>
<td>31</td>
<td>9</td>
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### Table 4

_Treatment Characteristics of Sample_

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>% Sample</th>
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<tbody>
<tr>
<td>Previous Psychotherapy</td>
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<td>50</td>
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<tr>
<td>High-risk&lt;sup&gt;a&lt;/sup&gt;</td>
<td>120</td>
<td>35</td>
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<tr>
<td>Other Services</td>
<td>128</td>
<td>37</td>
</tr>
<tr>
<td>School Supports&lt;sup&gt;b&lt;/sup&gt;</td>
<td>87</td>
<td>68&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>PT/OT/Speech Therapy</td>
<td>30</td>
<td>23&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>PINS/Probation</td>
<td>28</td>
<td>22&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Other Therapeutic&lt;sup&gt;c&lt;/sup&gt;</td>
<td>11</td>
<td>8.5&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Medication Management</td>
<td>140</td>
<td>40</td>
</tr>
<tr>
<td>Percentage of Attendance&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;50% sessions</td>
<td>37</td>
<td>11</td>
</tr>
<tr>
<td>50-74% sessions</td>
<td>175</td>
<td>50.5</td>
</tr>
<tr>
<td>75-99% sessions</td>
<td>112</td>
<td>32</td>
</tr>
<tr>
<td>100% sessions</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Number of Diagnoses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>161</td>
<td>46.5</td>
</tr>
<tr>
<td>Two</td>
<td>116</td>
<td>33.5</td>
</tr>
<tr>
<td>Three</td>
<td>54</td>
<td>16</td>
</tr>
<tr>
<td>Four</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Primary Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Disorder</td>
<td>81</td>
<td>23</td>
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<tr>
<td>Adjustment Disorder</td>
<td>65</td>
<td>19</td>
</tr>
<tr>
<td>ADHD</td>
<td>64</td>
<td>18</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>59</td>
<td>17</td>
</tr>
<tr>
<td>PTSD</td>
<td>49</td>
<td>14</td>
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<tr>
<td>DMDD</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>ODD</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Discharge Status</td>
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<tr>
<td>Treatment Completed</td>
<td>161</td>
<td>46.5</td>
</tr>
<tr>
<td>Premature Termination</td>
<td>185</td>
<td>53.5</td>
</tr>
</tbody>
</table>

<sup>a</sup> _High Risk_ refers to participants who endorsed past or current suicidal ideation.  
<sup>b</sup> _School Supports_ includes 504 plans, IEPs, special education, and others not mentioned.  
<sup>c</sup> _Other Therapeutic_ includes respite services, intensive case management, in-home supports, and others.  
<sup>d</sup> Number of sessions attended divided by number of sessions scheduled.  
<sup>e</sup> Refers to percentage of sample identified as having other services (N=128)
Table 5

**Collateral Participation**

<table>
<thead>
<tr>
<th>Collateral Participants</th>
<th>n</th>
<th>% Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>70</td>
<td>20</td>
</tr>
<tr>
<td>One Primary Caregiver</td>
<td>237</td>
<td>68</td>
</tr>
<tr>
<td>Two Primary Caregivers</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Primary Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>209</td>
<td>60</td>
</tr>
<tr>
<td>Father</td>
<td>25</td>
<td>7</td>
</tr>
<tr>
<td>Both parents</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Grandparent</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Step-parent</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Foster parent</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Other relative a</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Other non-relative</td>
<td>3</td>
<td>0.8</td>
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</tbody>
</table>

Percentage of Collateral Att.

<table>
<thead>
<tr>
<th>Percentage of Collateral Att.</th>
<th>n</th>
<th>% Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-74% of sessions</td>
<td>103</td>
<td>30</td>
</tr>
<tr>
<td>75-99% of sessions</td>
<td>78</td>
<td>22.5</td>
</tr>
<tr>
<td>100% of sessions</td>
<td>95</td>
<td>27</td>
</tr>
</tbody>
</table>

*a Other relative in all cases was identified as an aunt.*
Table 6

*Correlations Among Continuous Variables of Interest*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ACEs Score</td>
<td>346</td>
<td>4.12</td>
<td>2.18</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>346</td>
<td>11.88</td>
<td>3.43</td>
<td>.11*</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. % Attendance</td>
<td>346</td>
<td>71.45</td>
<td>14.85</td>
<td>-.02</td>
<td>.09</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>4. % Collateral</td>
<td>346</td>
<td>62.89</td>
<td>37.99</td>
<td>-.09</td>
<td>-.30**</td>
<td>-.09</td>
<td>—</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01.
Figure 1

ACEs Impact Throughout the Lifespan

![Diagram showing the impact of ACEs throughout the lifespan from birth to death.]

https://doi.org/10.1016/S0749-3797(98)00017-8
Appendix A: Original ACEs measure

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

1. Did a parent or other adult in the household \textbf{often} ... 
   Swear at you, insult you, put you down, or humiliate you? 
   \textbf{or} 
   Act in a way that made you afraid that you might be physically hurt? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

2. Did a parent or other adult in the household \textbf{often} ... Push, grab, slap, or throw something at you? 
   \textbf{or} 
   \textbf{Ever} hit you so hard that you had marks or were injured? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

3. Did an adult or person at least 5 years older than you \textbf{ever}... 
   Touch or fondle you or have you touch their body in a sexual way? 
   \textbf{or} 
   Try to or actually have oral, anal, or vaginal sex with you? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

4. Did you \textbf{often} feel that ... 
   No one in your family loved you or thought you were important or special? 
   \textbf{or} 
   Your family didn’t look out for each other, feel close to each other, or support each other? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

5. Did you \textbf{often} feel that ... 
   You didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you? 
   \textbf{or} 
   Your parents were too drunk or high to take care of you or take you to the doctor if you needed it? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

6. Were your parents \textbf{ever} separated or divorced? 
   \begin{tabular}{l|l}
   Yes & No \\
   \end{tabular}

7. Was your mother or stepmother: 
   \textbf{Often} pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes  No

8. Did you live with anyone who was a problem drinker or alcoholic or who used street
drugs?

Yes  No

9. Was a household member depressed or mentally ill or did a household member attempt
suicide?

Yes  No

10. Did a household member go to prison?

Yes  No

Now add up your “Yes” answers: ________

This is your ACE Score
Appendix B: 2018 National Survey of Children’s Health, ACEs items

Since this child was born, has…

1) It been hard to cover basics on family's income*
2) A parent or guardian divorced or separated
3) A parent or guardian died
4) A parent or guardian served time in jail
5) The child seen or heard parents or adults slap, hit, kick, punch one another in the home
6) The child been a victim of violence or witnessed violence in neighborhood
7) The child lived with anyone who was mentally ill, suicidal, or severely depressed
8) The child lived with anyone who had a problem with alcohol or drugs
9) The child been treated or judged unfairly due to race/ethnicity

*A response of 'somewhat often' or 'very often' to the question (ACE1) was coded as an adverse childhood experience. The remaining survey items are dichotomous with 'Yes/No' response options.
Appendix C: Clinic-specific ACEs measure

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

1. Did a parent or other adult in the household often ...
   Swear at you, insult you, put you down, or humiliate you?
   or
   Act in a way that made you afraid that you might be physically hurt?
   
   Yes        No

2. Did a parent or other adult in the household often ... Push, grab, slap, or throw something at you?
   or
   Ever hit you so hard that you had marks or were injured?
   
   Yes        No

3. Did an adult or person at least 5 years older than you ever...
   Touch or fondle you or have you touch their body in a sexual way?
   or
   Try to or actually have oral, anal, or vaginal sex with you?
   
   Yes        No

4. Did you often feel that ...
   No one in your family loved you or thought you were important or special?
   or
   Your family didn’t look out for each other, feel close to each other, or support each other?
   
   Yes        No

5. Did you often feel that ...
   You didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you?
   or
   Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
   
   Yes        No

6. Were your parents ever separated or divorced?
   
   Yes        No
7. Was your mother or stepmother:
   **Often** pushed, grabbed, slapped, or had something thrown at her?
   or
   **Sometimes or often** kicked, bitten, hit with a fist, or hit with something hard?
   or
   **Ever** repeatedly hit over at least a few minutes or threatened with a gun or knife?

   Yes   No

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?

   Yes   No

9. Was a household member depressed or mentally ill or did a household member attempt suicide?

   Yes   No

10. Did a household member go to prison?

    Yes   No

11. Were you ever homeless?

    Yes   No

12. Did your family ever have any type of contact with Child Protective Services?

    Yes   No