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Outcomes of a Telehealth Adaptation of a Trauma-Based Parent Training Program

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by

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Abstract

Approximately 25% of children will experience a traumatic event by the age of four. If trauma symptoms remain untreated, these traumatic experiences during early childhood can negatively impact a child's executive functioning skills, mental health, social interactions, and relational attachments to other individuals. Due to the harmful impact of untreated trauma symptoms on children's wellbeing and development, several evidence-based interventions have been developed. One such intervention is *Smart Start: Parenting Tools for Children with Developmental Delay, Social-Emotional Concerns, and Trauma (version 5)*, which targets children's disruptive behaviors and trauma symptoms, caregivers' parenting stress, and the caregiver-child relationship. This study utilized the Smart Start program with four caregiver-child dyads in which the child's age ranged from three to six years and the child had experienced a traumatic event. As part of this multiple baseline study, all dyads participated in at least three weeks of baseline treatment in which community resources and verbal support were provided. Then the dyads were enrolled in the intervention phase and were administered the nine-week Smart Start program. Data on each child's disruptive behaviors and trauma symptoms, as well as each caregiver's parenting stress, were collected in both baseline and intervention phases to analyze differences in outcomes once treatment was introduced. Descriptive statistics were used to assess caregiver acceptability of treatment, and the Wilcoxon signed-rank test was used to analyze changes in scores on measures of child disruptive behavior, child trauma symptoms, and caregiver parenting stress. Finally, hierarchical linear modeling (HLM) was used to assess differences in scores on child disruptive behavior within and across caregiver-child dyads. The

results of this study indicated a decreasing trend in ratings across child behavior, child trauma symptoms, and parenting stress, although these results were not statistically significant. Analysis of child behavior ratings within and across dyads showed a consistently decreasing trend but did not indicate any statistically significant differences between the baseline and intervention phases. It appears that the Smart Start program may have a positive impact on the outcome variables assessed in this study, but other variables such as therapeutic alliance and positive caregiver-child interactions also may play a part. Future research should continue to contribute to the ongoing literature base surrounding trauma-informed treatment of young children and their caregivers, in addition to providing further guidance to practitioners delivering parent training curricula through telehealth.

Chapter 1:

Introduction

Introduction

Exposure to traumatic events can negatively affect children in numerous ways and can lead to a number of adverse physical, psychological, social-emotional, and behavioral outcomes. Approximately 26% of children in the United States experience some form of trauma before they turn four years of age (Briggs-Gowan, Ford, Fraleigh, McCarthy, & Carter, 2010). Additionally, almost half of all children in the United States experience some form of traumatic event by the time they reach adulthood (National Survey of Children's Health, 2017). Based on these statistics, it is clear that many children will be victims of either directly experiencing or indirectly witnessing a traumatic event. Traumatic events may take the form of child abuse or neglect, large-scale events such as child exposure to natural disasters or acts of violence within the community, or the death of a loved one, according to the National Child Traumatic Stress Network (NCTSN; 2020). Adding to these traumatic events is the ongoing COVID-19 pandemic that has caused significant lifestyle changes, such as sheltering in place, quarantining, wearing masks in public, and transitioning to different school modalities (World Health Organization, 2020). The COVID-19 pandemic is expected to cause an increase in stress related to physical health, mental well-being, isolation, and economic difficulties, which in turn may heighten the severity of trauma symptoms in children (Bradbury-Jones & Isham, 2020).

Young children may exhibit a myriad of symptoms as a result of being exposed to a traumatic event, including avoidance, hypervigilance, intrusive thoughts, and negative affect (Brooks, Graham-Kevan, Robinson, & Lowe, 2019). Additionally, children who have experienced trauma often display a higher rate of disruptive behavior problems than their peers who have not encountered these experiences (Roche, Kroska, Miller, Kroska, & O'Hara, 2019). Trauma symptoms that remain untreated can have a negative long-term impact on children's executive functioning capabilities, social-emotional skills, mental health, relationships with others, and academic performance (NCTSN, 2020). Thus, it is imperative that children's trauma symptoms be addressed and treated in order to prevent later aversive behavioral and mental health outcomes.

There are several evidence-based therapy techniques that target the reduction of trauma symptoms in children. These therapies include parent education programs, trauma-focused parent training and parent education programs, trauma-focused cognitive behavioral therapy, eye movement desensitization and reprocessing, exposure therapy, and parent-child interaction therapy (Agazzi et al., 2019; Cohen, Mannarino, Kliethermes, & Murray, 2012; Mavranezouli et al., 2019; Seidler & Wagner, 2006). For trauma that has affected younger children from birth to 5 years of age, parent training programs can be highly beneficial in providing information to caregivers regarding how trauma manifests itself in children, as well as how to manage symptoms and behaviors related to traumatic stress (Agazzi et al., 2019). One such program is *Smart Start: Parenting Tools for Children with Developmental Delay, Social-Emotional Concerns, and Trauma* (Agazzi, Salloum, Shaffer-Hudkins, & Adams, 2018). Smart Start utilizes principles from Parent-Child Interaction Therapy (PCIT; Funderburk & Eyberg; 2011) and focuses on enhancing the caregiver-child relationship, reducing the child's trauma symptoms

primarily through parent education, and helping caregivers manage their child's disruptive behavior problems. Initial studies involving the Smart Start program have indicated multiple positive outcomes, including decreases in children's disruptive behaviors and parenting stress (Agazzi et al., 2019; Dickinson, 2018). In addition, preliminary research surrounding the Smart Start program have demonstrated an increase in caregivers' knowledge in addressing their child's trauma symptoms (Dickinson, 2018). Thus, it appears that Smart Start has demonstrated promising results and would benefit from further research surrounding its effectiveness.

Statement of the Problem

Although there are a multitude of positive outcomes associated with parenting interventions and reducing children's disruptive behaviors, there is limited research investigating treatment outcomes of trauma-informed parent training programs, particularly regarding younger children (Mavranezouli et al., 2019). More specifically, little research exists regarding telehealth implementation of such interventions, especially in light of the COVID-19 pandemic. Despite the limited number of studies related to trauma-informed parenting programs for younger children, initial outcomes of telehealth programs addressing children's mental health concerns have been positive, similar to in-person programs (Gloff, LeNoue, Novins, & Myers, 2015). Multiple telehealth trauma therapies for children have demonstrated positive outcomes, including reduced trauma symptoms and disruptive behavioral problems in children, as well as increased quality of caregiver-child relationships (Gurwitch, Salem, Nelson, & Comer, 2020; Stewart et al., 2020).

Despite the benefits provided by telehealth therapy programs to families, several barriers exist in telehealth implementation. There is the obvious issue of ensuring that caregivers understand the online platform being used to provide telehealth services. Other similar problems that may arise during provision of telehealth services are unstable internet connectivity and a

lack of devices that are able to access the necessary online platforms (Briere, Lanktree, & Escott, 2020). Additionally, practitioners may need to spend more time adapting their rapport-building techniques to developing therapeutic alliances with clients in virtual settings, due to both the client's and practitioner's comfort communicating through telehealth modalities (Perera, Gambheera, & Williams, 2020). Finally, it is important to consider the interventionist's ability to navigate telehealth services and continue to facilitate treatment strategies with fidelity in an online format (Soares & Langkamp, 2012).

Further research is necessary on telehealth delivery of trauma-focused parent training and education programs, as this online format has the potential to reach families who otherwise may not have access to such treatments. Telehealth programs can reach families who have limited transportation or who do not live close to a physical clinic, and these virtual programs may reduce the costs of transportation and childcare (Owen, 2020; Soares & Langkamp, 2012). In addition, with the unexpected and sudden need to transition to virtual adaptations as a result of COVID-19, practitioners have begun to explore alternative treatment methods not previously studied to a thorough extent. Thus, online implementation of trauma-focused parent training and education programs should continue to be utilized by practitioners, and treatment outcomes and caregiver feedback regarding these programs should be analyzed.

Theoretical Framework

This study utilized both attachment theory (Bowlby, 1969) and a conceptual framework for trauma that focuses on the long-term impact of traumatic experiences on children's social-emotional skills and behavior (Carlson, Furby, Armstrong, & Shlaes, 1997).

Attachment theory plays a critical role in how child trauma should be treated. As purported by Bowlby in 1969, young children find security and comfort in being close to their

caregiver(s). Secure attachment between a caregiver and child is characterized by warm interactions, increased trust between both parties, high rates of child compliance with caregiver demands, and high levels of responsiveness of caregivers to their children's needs (Ainsworth, 1991). This type of secure, healthy attachment style has been shown to lead to positive social-emotional outcomes for children (Allen, Timmer, & Urquiza, 2014). By contrast, children who are involved in negative interactions with their caregivers and develop insecure attachment styles are at risk for developing social-emotional problems and having poor interpersonal relationships (Urquiza & Timmer, 2013). Exposure to trauma can affect children's attachment styles with their caregivers, creating more negative interactions and less trust towards their caregivers (John et al., 2019). Young children also take social cues from their caregivers as a means of early coping skills, so when their family is affected by a traumatic event, they may become more responsive to, and aware of, caregivers' heightened stress and instability (Chu & Lieberman, 2010). Hence, it is important to incorporate caregivers in the treatment of young children's trauma symptoms, as emphasizing the attachment between the child and caregiver can be a central part of addressing the child's trauma.

According to the trauma framework used in this study, a traumatic experience is distinguished as a highly negative, sudden or abrupt, and uncontrollable event (Carlson & Dalenberg, 2000). Children's trauma symptoms (i.e., guilt, shame, avoidance, fear, etc.) can lead to a variety of poor social-emotional and behavioral outcomes later in life. Children who have experienced abuse, for example, may have later difficulties forming and maintaining personal relationships with caregivers, peers, and other individuals (Carlson et al., 1997). Trauma also can lead to further disruptive behavior problems such as aggression and noncompliance in children, especially if the child does not have a secure and positive relationship with their

caregiver (Spinazzola et al., 2017). Secure attachments between children and their caregivers can help provide a social model for creating and maintaining positive relationships with other individuals. (Carlson et al., 1997).

Rationale and Purpose of the Study

The purpose of this study was to examine the outcomes of the Smart Start trauma-focused parent training program, including changes in caregivers' ratings of their children's disruptive behavior problems and trauma symptoms, their own parenting stress, and their acceptability of the telehealth adaptation of Smart Start. This study was implemented entirely through telehealth, given its occurrence during a global pandemic, in order to determine the efficacy of Smart Start when delivered in this online modality. Thus, it is the author's hope that this research also will help expand the literature base on telehealth implementation of trauma-focused parent training programs.

Research Questions

Addressing treatment outcomes of telehealth implementation of the Smart Start program was critical to understanding the impact telehealth delivery may have on the program's success. Changes in children's disruptive behavior problems, children's trauma symptoms, and caregivers' parenting stress levels were examined. In addition, caregivers' acceptability of treatment was assessed after completion of the Smart Start program. The research questions for this study were as follows:

1. Do caregivers' ratings of their children's disruptive behavior problems decrease in frequency and intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?

2. Do caregivers' ratings of their children's trauma symptoms decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
3. Do caregivers' ratings of their parenting stress levels decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
4. Do caregivers engage in more positive interactions with their children after participating in a telehealth adaptation of Smart Start?
5. How do caregivers perceive the acceptability and feasibility of Smart Start?

Contributions to Current Literature

This study sought to add information to the current literature base surrounding treatment outcomes and acceptability trauma-focused parent training programs delivered through telehealth. In particular, the primary investigator hoped to assess several caregiver and child treatment outcomes as a result of participation in a telehealth-delivered adaptation of the trauma-focused parent training program Smart Start for Trauma. These outcomes included 1) children's disruptive behavior problems, 2) children's trauma symptoms, 3) caregivers' parenting stress, 4) caregiver-child interactions, and 5) caregiver acceptability of treatment. As telehealth services continue to expand, caregiver perspectives regarding acceptability of such interventions must be monitored to ensure that telehealth is convenient and accessible to families. Thus, acceptability of treatment measures in the form of a therapy attitude questionnaire also was given to caregivers in order to gather this critical information and add to the literature base regarding acceptability of telehealth treatment for trauma behavioral interventions for caregivers and their children.

Definition of Key Terms

1. Child trauma: The NCTSN (2020) defines child trauma as any "frightening, dangerous, or violent event" that causes significantly negative physical, mental, and emotional stress for a child. Trauma may be induced either through direct involvement in a traumatic event, or through witnessing the event. Examples of traumatic events can include 1) physical or sexual abuse, 2) neglect, 3) natural disasters, 4) acts of terrorism, 5) domestic violence, 6) violence within the community, 7) unexpected loss of a loved one, 8) exposure to substance abuse, 9) war, and 10) surviving severe accidents or illnesses (NCTSN, 2020).
2. Disruptive behaviors: Disruptive behaviors are defined as the outward display of behaviors that do not comply with adult demands and can disturb the child's and family's everyday routines (Roskam, 2019). Examples of disruptive behaviors include physical aggression, property destruction, verbal outbursts such as crying or screaming, and refusing to follow directions. When children engage in disruptive behaviors, caregivers report higher levels of parenting stress due to difficulty in managing these behaviors (Davis & Carter, 2008).
3. Parenting stress: Parenting stress is defined as an imbalance wherein parenting demands exceed the caregiver's available parenting resources (Deater-Deckard, 2004). Parenting stress can have a negative impact on the caregiver-child relationship, the caregiver's mental health, and parenting techniques such as discipline and skill-building (Davis & Carter, 2008).
4. Trauma-informed parent training program: A trauma-informed parenting intervention is a behavioral parent training program that incorporates components

of trauma psychoeducation and skill development (Agazzi et al., 2019). Caregivers who participate in a trauma-informed parent training program are prompted to utilize both behavior management strategies and strategies for reducing trauma symptoms in their children.

Chapter 2:

Literature Review

Overview

Trauma during early childhood can have a significant impact on a child's development and later cognitive, psychological, and behavioral outcomes. This first part of this literature review addresses several key features of child trauma, as well as factors underlying its effects on children. First, child trauma will be clearly defined and the prevalence of trauma in children will be discussed. Then, differentiations will be made between simple and complex trauma, and direct and indirect exposure to trauma. Symptoms of trauma, particularly child traumatic stress, also will be expounded upon in this section. Both risk factors and protective factors will be analyzed with regard to their potential impact on a child's exposure to, and processing of, traumatic events. The developmental trajectories of untreated child trauma also will be addressed as they relate to a variety of life domains. The second section of this literature review will present a broad overview of existing evidence-based treatments for trauma, followed by a more specific discussion of the Smart Start program. It is the primary investigators' hope that providing this broad understanding of trauma in early childhood will facilitate further understanding of the presented study, as well as further understanding of the need for trauma supports for young children.

Defining Child Trauma

Approximately 26% of children in the United States are exposed to a traumatic event before they are four years old (Briggs-Gowan et al., 2010). Given this significant percentage of young children affected by trauma, it is imperative that child trauma be operationally defined. The NCTSN (2020) defines child trauma as any frightening or perilous event that has the potential to cause physical or psychological harm to a child. A traumatic event can be any highly stressful or dangerous experience and includes natural disasters, community violence (i.e., school shootings, riots, etc.), sudden or violent deaths of loved ones, serious injuries or threats to physical safety, physical neglect, and any kind of abuse (i.e., physical, sexual, psychological, etc.).

There are multiple subcategories of child trauma. First, trauma can be categorized into either simple or complex experiences. Simple trauma involves the child experiencing one traumatic event. By contrast, complex trauma involves chronic exposure to traumatic events and has interpersonal implications (Spinazzola et al., 2017). Complex trauma, if left untreated, has a higher probability of leading to aversive outcomes in children's psychopathology and behavior (Wamser-Nanney & Cherry, 2018). Second, children can experience trauma directly or indirectly. Examples of direct exposure to trauma include: 1) the child being the subject of abuse or neglect, 2) the child losing their home during a natural disaster, or 3) the child being injured in community violence or a serious accident (Cohodes, Chen, Lieberman, & Bush, 2020). Examples of indirect exposure to trauma include: 1) the child witnessing domestic violence, 2) the child witnessing the death or serious injury of a loved one, or 3) the child watching a natural disaster or community violence take place without direct involvement in said events (NCTSN, 2020).

Child Traumatic Stress

Defining child traumatic stress. The NCTSN (2020) defines child traumatic stress as repeated or chronic exposure to traumatic events that lead to lasting psychological and physical reactions related to those traumatic events. For approximately 25% of young children who have experienced trauma, this traumatic stress becomes post-traumatic stress disorder (PTSD; Hagan, Gentry, Ippen, & Lieberman, 2017). The American Psychiatric Association (2020) defines PTSD in young children as having at least one intrusive symptom and at least one avoidance symptom as the result of experiencing or witnessing a traumatic event. In addition to these intrusive and avoidant symptoms, children may display a variety of physical, behavioral, and social-emotional symptoms.

Symptoms of child traumatic stress. Children may display different symptoms of traumatic stress compared to adults. Post-traumatic stress in childhood often manifests itself through the child reliving the traumatic event, actively avoiding any situation that may be similar to the traumatic event, and becoming hypervigilant (Scheeringa et al., 2011). Victims of trauma may have frequent intrusive thoughts, which can include recurring ideas or memories regarding physical or sexual violence, inappropriate sexual behaviors, thoughts of potential harm to loved ones, or memories of the traumatic event (Brooks et al., 2019). These thoughts, in addition to avoiding potential trauma triggers, can affect how children understand and cope with the trauma they experience. Children also may display higher levels of hyperarousal and negative affect or mood (Hagan et al., 2017). This may manifest through increased irritability and emotional outbursts. For many children who have experienced trauma, symptoms of traumatic stress may emerge during play, such as through the child's actions with dolls and stuffed animals (Herbers et al., 2014). These actions may involve the child reenacting violent or inappropriate physical or

sexual behaviors with their toys, which may reflect the harm that has been inflicted or is currently being inflicted on the child.

In addition to the psychological symptoms discussed above, traumatic stress in childhood can affect a child's physical wellbeing. Some children who are experiencing traumatic stress or PTSD symptoms may feel bodily pain like stomach aches or headaches, have increased difficulty sleeping, and display more problematic eating behaviors, such as eating too little or becoming overly picky with what they eat (NCTSN, 2020). Many children report having nightmares surrounding the traumatic events they have experienced or are experiencing (Cohodes et al., 2020). These nightmares add to the disruption of sleep and increase children's anxiety and avoidance of the trauma experienced.

Finally, children who experience trauma may display more behavior problems than their peers (Roche et al., 2019). Specifically, exposure to trauma can lead to increased disruptive behaviors, including aggression and noncompliance with demands (Chen, Cohodes, Bush, & Lieberman, 2020). Aggression may be physical (i.e., the child hitting, kicking, pushing, or biting another person or animal) or verbal (i.e., the child yelling at or using unkind words with another person). In addition to these examples, children also may engage in property destruction, such as throwing or breaking objects. Other disruptive behaviors that children exposed to trauma may exhibit are throwing temper tantrums, screaming, crying, whining, and using inappropriate attention-seeking behaviors (Tully & Hunt, 2016). Noncompliance may also be operationalized as children verbally or physically refusing to complete tasks.

Risk Factors for Child Trauma

There are several risk factors to consider when a child undergoes a traumatic event. Such factors may involve the level of severity of the event, the child's closeness to the event,

caregivers' responses to their child's reactions to the event, the child's previous history of trauma, and other variables specific to the child's family and greater community (NCTSN, 2020). Factors like these also are known as Adverse Childhood Experiences (ACEs; Racine, Eirich, Dimitropoulos, Hartwick, & Madigan, 2020). The severity of the traumatic event can affect how children display trauma symptoms. For example, young children who experience clinically severe levels of PTSD are more likely to have heightened levels of anxiety and overall sadness, as well as more intrusive thoughts (Scheeringa, Zeanah, & Cohen, 2011). Severity of the traumatic event may involve the level of physical or mental harm caused to the child, the level of brutality in the violence witnessed, or the level of destruction caused by the event.

Similar to severity, the proximity of the child to the traumatic event, as well as the child's prior history of trauma, play a role in how traumatic symptoms are manifested. Primary exposure to trauma involves close proximity to the event, such as the child being the direct victim of abuse (Pine, Costello, & Masten, 2005). Secondary exposure to trauma involves a further level of proximity, such as the child witnessing a school shooting on television. The child's previous history of trauma has an impact on their reactions to other traumatic events, as well. Research has shown that children exposed to previous traumatic events exhibit more intense reactions to new traumatic events, compared to children without a history of trauma (Hardner, Wolf, & Rinfrette, 2018; Pine et al., 2005).

Family variables are important to consider when evaluating a child's trauma. It should be noted that one major source of trauma for young children is exposure to domestic violence, which often can occur by the time a child is 5 years old (Fantuzzo & Fusco, 2007). Negative interactions with caregivers, as well as high levels of parenting stress, can be another risk factor for trauma (Center for Disease Control and Prevention, 2020). Additionally, if the child's family

is of low socio-economic status, they may have limited accessibility to trauma resources (Herberle, Thomas, Wagmiller, Briggs-Gowan, & Carter, 2014). Lastly, community factors, such as high violence within the child's neighborhood or few economic resources within the surrounding area can have a negative effect on traumatic symptoms in children (Paul et al., 2006). Community locations such as schools also may be triggering for the child due to the trauma that was experienced in those locations.

Protective Factors for Child Trauma

Despite the many risk factors that may be present when a child is exposed to a traumatic event, the existence of protective factors can reduce the likelihood of the child developing traumatic stress. Protective factors for trauma include the child having positive coping skills, a close relationship with their caregiver(s), and community connections. The child's own skills and abilities, such as their intelligence, emotional regulation, and positive self-beliefs are significant protective factors for trauma (Racine et al., 2020). Specifically, the child's ability to self-regulate emotions and develop positive coping skills reduces the likelihood of developing trauma symptomology, in addition to reducing the severity of trauma symptoms (Forbes, Lee, & Lakeman, 2020). Such resilience can develop naturally in the child, or it can be taught through various forms of social skills training and counseling therapies.

Another protective factor is the quality of the relationship between the child and their caregiver(s), as a positive and close relationship with a caregiver can lead to increased feelings of safety and security (Spinazzola et al., 2017). Because a child's perception of safety is partially dependent on the quality of attachment with their caregiver(s), a supportive family environment can prevent aversive childhood experiences and reduce the severity and length of trauma symptoms (Centers for Disease Control and Prevention, 2020). Finally, community connections

can provide yet another layer of support to children who may be at risk for developing traumatic symptoms. The child's cultural background and the closeness of their cultural community, as well as their religious background and community, can have a significant role in helping the child address potential traumas in a safe and healthy manner (NCTSN, 2020). In addition, the child's family may have adequate access to medical care and mental health resources, sufficient housing and nutrition, and fewer economic stressors, all of which are protective factors for trauma (Centers for Disease Control and Prevention, 2020).

Developmental Trajectories for Traumatic Stress in Children

Untreated trauma symptoms in young children can have a detrimental effect on the development of children's executive functioning skills (Cohodes et al., 2020). It may be more difficult for children who have experienced trauma to make decisions and to focus on tasks, as compared to their peers who have not been exposed to trauma. In addition to having a negative impact on executive functioning skills and attention, traumatic stress can lead to difficulty with learning and later academic deficits (NCTSN, 2020). These academic difficulties may cause children to require additional support regarding school activities.

In addition, traumatic stress left untreated can cause psychological distress for children. Children who experience trauma may display heightened anxiety and depressive symptoms (NCTSN, 2020). In particular, exposure to domestic violence has been shown to lead to increases in children's anxiety and depressive symptoms (Paul et al., 2006). Other psychological symptoms may include recurring intrusive thoughts, chronic guilt or shame regarding the traumatic experience, and increased irritability and anger (Racine et al., 2020). Emotional regulation also may become difficult for children who have experienced trauma, due to the impact that the traumatic experience has on their executive functioning capabilities (Abrahamse,

Junger, van Wouwe, Boer, & Lindauer, 2016). Lack of emotional regulation may lead children to have difficulty controlling their anger, fear, and other negative feelings.

Finally, trauma affects the social bonds that children form and these attachment difficulties can continue into adolescence and adulthood. Children may find it difficult to form new attachments with peers and adults due to the trauma they have experienced, particularly if the trauma was interpersonal in some way such as abuse or neglect (John et al., 2019). Other negative social behaviors that may occur as a result of trauma in early childhood include bullying peers, engaging in physical altercations, perpetuating dating violence, and displaying verbally and physically aggressive behaviors towards others (Evans-Chase, 2014). Due to these inappropriate behaviors, children may have greater difficulty with succeeding in school and with finding and maintaining employment as adults (John et al., 2019). Risk-taking behaviors also have a higher rate of occurring in children who have difficulty forming secure attachments with others as a result of trauma. Such risky behaviors can include abusing substances, self-harming, and failing to engage in safe sex practices (Williams, 2020). All of these potential negative outcomes provide a strong rationale for the need for evidence-based treatment of trauma symptoms in children.

Evidence-Based Interventions for Child Trauma

There are several evidence-based interventions for treating the symptoms of child trauma. Such interventions include trauma-focused cognitive behavioral therapy (TF-CBT; Cohen et al., 2012), Parent-Child Interaction Therapy (PCIT; Gurwitch, Messer, & Funderburk, 2017), Child-Parent Psychotherapy (Lieberman, Van Horn, & Ghosh Ippen, 2005), exposure therapy (Rothbaum & Schwartz, 2002), and eye movement desensitization and reprocessing (EMDR;

Shapiro, 2007). Each of these treatment strategies will be discussed in more detail in the following paragraphs. Finally, a review of the Smart Start program also will be provided.

Trauma-focused cognitive behavioral therapy. The main purposes of TF-CBT are to 1) educate the child on trauma and PTSD, and 2) to change negative thoughts and behaviors regarding the child's reactions to trauma triggers and the traumatic event itself (Cohen et al., 2012). In past studies, TF-CBT has demonstrated significantly high efficacy in treating children's trauma symptoms (Allen, Gharagozloo, & Johnson, 2012). Specifically, TF-CBT has been shown to reduce feelings of guilt and shame, improve overall trauma symptoms, and reduce harmful or risky behaviors that children who have experienced trauma may engage in (Cohen et al., 2012). In addition, this therapy technique has demonstrated increases in positive parenting skills, as well as children's knowledge of interpersonal safety (Deblinger, Mannarino, Cohen, Runyon, & Steer, 2010). Treatment gains from TF-CBT also appear to be maintained at follow-up (Jensen, Holt, & Ormhaug, 2017). Moreover, the inclusion of the child's caregiver in TF-CBT has increased rates of improvement in children's trauma symptoms due to a focus on interpersonal trust and interactions (Cohen et al., 2012). However, there are some limitations to this treatment, as well. One such limitation is the presence of high drop-out rates in multiple studies analyzing the effectiveness of TF-CBT, which may partly be due to the length of time in which individuals are exposed to trauma triggers (Boterhoven de Haan et al., 2017; Cloitre et al., 2011). Additionally, practitioners who prefer a more flexible rather than structured approach to trauma-focused therapy may prefer another technique over TF-CBT (Cohen, Mannarino, & Deblinger, 2006).

Parent-child interaction therapy. PCIT is yet another therapy technique that has been empirically shown to improve trauma symptoms in children (Allen et al., 2012). Originally, this

treatment was intended for families of children ages 2-7 years who exhibited behavioral problems, but expansions of PCIT have been made to address other concerns, including parenting stress and exposure to trauma (Gurwitch et al., 2017). The two treatment phases of PCIT are child-directed interaction or CDI, which focuses on improving the caregiver-child relationship, and parent-directed interaction or PDI, which focuses on improving child compliance to caregiver demands (Blair, Topitzes, Winkler, & McNeil, 2020). Research has shown that PCIT decreases disruptive behavior problems and trauma symptoms in children who have experienced traumatic events such as maltreatment and domestic violence or abuse (Timmer, Ware, Urquiza, & Zebell, 2010; Herschell, Scudder, Schaffner, & Slagel, 2017; Timmer, Ware, Urquiza, & Zebell, 2010). In addition, PCIT has been shown to reduce parenting stress in caregivers of children who have experienced trauma (Blair et al., 2020). Currently, PCIT is one of the most supported treatments for child trauma because it has a strong focus on strengthening the caregiver-child relationship and helping create a more secure attachment style between children and their caregivers (Allen et al., 2012). Limitations of PCIT also exist, with one potential barrier being low client attendance, which can affect the time and level of treatment effectiveness (NCTSN, 2019). Another limitation is the belief that time-out, a common behavior management practice used in PCIT, may exacerbate trauma symptoms in children. However, research has demonstrated that time-out does not have negative psychological effects on children displaying trauma symptoms, and in fact can reduce internalizing psychological symptoms in children (Carpenter et al., 2014).

Child-parent psychotherapy. Another evidence-based intervention for children ages birth to five who have experienced traumatic events is Child-Parent Psychotherapy (CPP; Lieberman, Van Horn, & Ghosh Ippen, 2005). In this intervention, the caregiver and child both

take part in treatment to practice positive play interactions with support from a therapist, develop a family story to cope with traumatic events and build resilience, understand and cope with difficult feelings and behaviors, and access psychoeducational resources about trauma. Two unique aspects of CPP is that in addition to managing the child's trauma symptoms, it addresses caregivers' trauma symptoms and caregiver-child interactions. A main purpose of CPP is to strengthen the caregiver-child relationship and increase the number of positive familial interactions, highlighting the attachment between the child and caregiver as a protective factor against trauma symptoms (Guild, Toth, Handley, Rogosch, & Cicchetti, 2017). Previous studies have demonstrated the effectiveness of CPP, including the reduction of children's trauma symptoms and behavior problems, as well as the reduction of mothers' avoidant trauma symptoms in one study (Ippen, Harris, Van Horn, & Lieberman, 2011; Lieberman et al., 2005; Stronach, Toth, Rogosch, & Cicchetti, 2013). In addition, mothers' parenting stress levels have also been shown to decrease as a result of participating in this intervention (Guild et al., 2017; Toth, Sturge-Apple, Rogosch, & Cicchetti, 2015). CPP also has proven to be beneficial to children and families from various cultural backgrounds, as demonstrated by inclusion of diverse study samples (Ippen et al., 2011; Stronach et al., 2013). Despite these benefits, limitations of this treatment do exist, including the longer length of treatment and the inability to be entirely manualized due to the necessary flexibility of working with young children (NCTSN, 2020).

Exposure therapy. Research has shown that exposure therapy reduces the level of discomfort experienced by the child when being exposed to situations that have similarities to the child's traumatic experience (Onyut et al., 2005). Exposure therapy involves psychoeducation surrounding PTSD and repeated discussion or narration of the traumatic event in order to improve the child's resilience and coping capabilities regarding that trauma (Ertl, Pfeiffer,

Schauer, Elbert, & Neuner, 2011). Chronic PTSD symptoms have been shown to be reduced with exposure therapy, particularly through the child's creation of a trauma narrative, and treatment gains have been shown to be maintained at follow-up (Ruf et al., 2010). In addition, exposure therapy has been used for a variety of traumatic experiences, including natural disasters, exposure to violence, and chronic abuse. Exposure therapy certainly has its own limitations, however, including a potential increase in clients' feelings of guilt and shame due to prolonged exposure to traumatic stimuli, as well as more difficulty working with clients who may display impulsive or noncompliant behaviors as a coping mechanism when considering their traumas (Paunovic, 1997).

Eye movement desensitization and reprocessing. EMDR has emerged as a strategy for reducing trauma symptoms in children ages 4-18 (Shapiro, 2007). This therapy technique involves the combination of psychotherapy and bilateral sensory stimulation through the brain's information processing center (Chen, Gillepsie, Zhao, Xi, Ren, & McLean, 2018). EMDR begins with gathering history about the child's medical, psychological, and family backgrounds, as well as gathering information about the child's history of trauma. Once the actual treatment process starts, the child is prompted to focus on recalling their physiological and emotional reactions to traumatic memories while also attending to an unrelated external stimulus, which divides the child's attention and reduces the child's psychological distress in recalling the traumatic memories (Shapiro, 2007). The goal of EMDR therapy is for the child to reframe negative associations regarding their traumatic experiences into positive associations. This procedure increases children's adaptive skills and thoughts and builds on the child's positive beliefs and self-worth. EMDR has been shown to decrease trauma symptoms and reduce the likelihood of reliving traumatic events (Ahmed, Larsson, & Sundelin-Wahlsten, 2009). In addition, EMDR has

been shown to improve trauma symptoms in groups of children who have experienced natural disasters (Jarero, Artigas, & Hartung, 2006). Although EMDR has demonstrated positive outcomes in children with trauma symptoms, research has indicated that the severity of the traumatic event may impact EMDR's effectiveness, with children displaying more severe trauma symptoms showing less improvement than their peers (Rodenburg et al., 2009). Other criticisms of this treatment include limited follow-up data collection and lack of agreed-upon progress monitoring measures (Wilson et al., 2018).

Smart Start Parent Training Program

The trauma-focused parent training program known as *Smart Start: Parenting Tools for Children with Developmental Delay, Social-Emotional Concerns, and Trauma* was used in this study. The Smart Start program was developed by Agazzi, Shaffer-Hudkins, Salloum, and Adams (2016) and has a strong foundation in PCIT, including incorporation of child-directed interactions (CDI). The curriculum consists of nine weekly one-hour sessions, with the first week used for an orientation session and the subsequent eight weeks used for the actual intervention. An outline of session content can be found in Table 1 below. A typical session begins with a brief conversation between the therapist and the caregiver to determine weekly progress regarding the child's disruptive behaviors and trauma symptoms, the caregiver's parenting stress, and the caregiver's interactions with the child. Then, the therapist provides resources and information on child trauma, as well as how to address children's trauma symptoms. Education on appropriate behavioral management strategies such as time-out and follow through also are included in these sessions to help facilitate a trauma-informed behavioral approach (Agazzi et al., 2019). Finally, the therapist coaches the caregiver in how to engage in positive play interactions with their child through CDI, which highlights important play skills such as 1)

praising the child for engaging in appropriate behaviors, 2) reflecting what the child says, 3) imitating what the child is doing/playing with, 4) describing what the child is doing, and 5) enjoying the play with the child (Gurwitch, Messer, & Funderburk, 2017).

Data regarding the child's disruptive behaviors, the child's trauma symptoms, and the caregiver's parenting stress are collected throughout the sessions, with caregivers rating their children's disruptive behaviors once per week, their children's trauma symptoms at the beginning and at the end of treatment, and their own parenting stress at the beginning and at the end of treatment. The assessments recommended for use in the Smart Start program will be used in this study, and they are discussed in further detail in the Measures section in Chapter 3 of this document. In addition, caregiver-child interactions through CDI also are monitored through data to ensure that caregivers are utilizing CDI skills while playing with their child. The criteria for meeting CDI mastery is to provide 10 labeled praises, 10 reflections, and 10 behavior descriptions within a five-minute time frame, while minimizing the amount of questions, commands, and negative statements made.

Preliminary research surrounding the efficacy of the Smart Start program has demonstrated positive outcomes for both children and their caregivers. The Smart Start program has led to reductions in children's trauma symptoms, with six children in one study displaying trauma symptoms within the clinical range before treatment, and only two children displaying trauma symptoms within the clinical range after treatment (Agazzi et al., 2019). Similarly, caregivers who have participated in the Smart Start program have reported improvements in their relationships and interactions with their children (Agazzi et al., 2016; Agazzi et al., 2019; Dickinson, 2018). These findings are consistent with studies analyzing the effectiveness of CDI in PCIT (Gurwitch et al., 2017). Smart Start's effect on children's disruptive behaviors has

varied across studies, with one study finding children's disruptive behaviors unaffected, and the other study finding improvement in caregivers' reports of their children's disruptive behavior (Agazzi et al., 2016; Agazzi et al., 2019; Dickinson, 2018). Future research should be conducted on the Smart Start program's impact on changes in caregivers' perceptions of their children's behavior, and this study seeks to add to this literature base. Finally, improvements in parenting stress have been demonstrated through initial findings surrounding the Smart Start program, with many caregivers' parenting stress levels falling below or staying below the clinical range (Agazzi et al., 2019; Dickinson, 2018). It is clear that the Smart Start program has the potential to be an effective treatment for families of young children displaying trauma symptoms, and it is the primary investigator's hope that this study can add to this growing body of research.

Table 1

Session Layout of Smart Start Curriculum

Title of Session	Content
Orientation	• Educate caregiver on Smart Start program • Discuss SE-Tips and Traumatic Stress Storyboard • Observe caregiver-child dyad interactions
Week 1	• Review SE-Tips and Traumatic Stress Storyboard • Discuss caregiver self-care (SE-Tip) • Introduce and coach CDI skills with caregiver
Week 2	• Discuss using physical affection with child (SE-Tip) • Review and coach CDI skills
Week 3	• Complete parenting balance activity (SE-Tip) • Review and coach CDI skills
Week 4	• Discuss strengths and concerns for child (SE-Tip) • Teach caregiver how to give clear directions to child • Teach caregiver how to use follow through for directions • Coach CDI skills, clear directions, and follow through

Table 1 (Continued)

Week 5	• Have caregiver complete YCPS screener • Discuss child showing caregiver how they feel (SE-tip) • Coach CDI skills, clear directions, and follow through
Week 6	• Educate caregiver on relaxation strategies (SE-tip) • Teach caregiver to use time-out for aggression • Coach CDI skills, clear directions, and follow through • Discuss using CDI, clear directions, follow through, and time out in public settings
Week 7	• Reviewing SE-tips from previous weeks • Coach CDI skills, clear directions, and follow through
Week 8	• Review and coach CDI, clear directions, follow through • Review generalization of skills learned for public settings • Terminate services and provide follow-up resources

It should be noted that telehealth implementation of the Smart Start program has not yet been examined in the existing literature. However, with the onset of the COVID-19 pandemic, which has significantly limited face-to-face interactions due to the rapid spread of the virus, Smart Start materials were delivered virtually to participants in order to enhance the safety, comfort, and convenience of study participation. Because this research utilized telehealth to adapt a trauma-focused parenting program for dissemination, a brief description of telehealth trauma-informed interventions is provided in the section below.

Telehealth Trauma-Informed Interventions

With the onset of the COVID-19 pandemic, there is an increased need to provide telehealth services to children and their families. A concern among practitioners and researchers is that telehealth delivery of treatment strategies may not lead to significant positive outcomes as would in-person delivery. Research has shown, however, that telehealth delivery of evidence-based therapy treatments can be just as effective as in-person delivery (Gloff et al., 2015). Many

trauma-focused interventions also have made the transition to telehealth, and with this move comes a plethora of facilitators and barriers to address (Racine et al., 2020). Thus, in order to determine the feasibility of implementing a trauma-focused behavioral parent training program through telehealth, it is important to first review the existing research surrounding telehealth trauma interventions.

Telehealth treatment outcomes. Overall, telehealth-implemented trauma interventions have appeared to improve children's trauma symptoms. One study showed that out of the 70 children who participated in telehealth TF-CBT, 96% did not meet diagnostic criteria for a trauma-related disorder post-treatment (Stewart et al., 2020). Telehealth TF-CBT has not only demonstrated reductions in trauma symptoms, but also lower rates of disruptive behaviors, lower rates of anxiety, and lower depressive symptoms (Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2010). PCIT delivered through telehealth (I-PCIT) also has been shown to be effective in reducing children's disruptive behavior problems and in reducing parenting stress (Gurwitch et al., 2020). One study even indicated that I-PCIT was more effective than in-person PCIT when comparing treatment outcomes, with 70% of children in I-PCIT having reductions in disruptive behaviors as opposed to only 55% of children in face-to-face PCIT (Comer et. al, 2017). Additionally, the same study found that children in the I-PCIT group had better treatment outcomes at a six-month follow-up, compared to their face-to-face counterparts. Results like these highlight the value of telehealth implementation of treatment services, particularly in times where face-to-face access is limited, such as the current COVID-19 pandemic.

Barriers to telehealth. Telehealth treatment for trauma can come with a variety of barriers. Families may not have reliable internet access or may struggle using the predetermined telehealth application for therapy services (Gurwitch et al., 2020). Computer and internet

reliability on the practitioner's part also can be a barrier to treatment. Additionally, ensuring that the telehealth application used is compliant with the Health Insurance Portability and Accountability Act (HIPAA) is critical to effective and ethical service delivery (Stewart, Orengo-Aguayo, Gilmore, & de Arellano, 2017). Finally, the child's and/or family's privacy during sessions may be harder to ascertain with multiple family members living in the home (Stewart et al., 2017). In order to address these barriers, practitioners can engage in the following steps: 1) ensuring that their own computer capabilities and internet connection are secure, 2) asking the family about internet stability and access to a computer, 3) using a HIPAA-compliant application, 4) walking the family through use of the telehealth application, and 5) helping the child and/or other involved family members set up a private area within the home (Briere et al., 2020).

Facilitators of telehealth. Despite the potential barriers to telehealth implementation of therapy treatments, there also are a number of benefits to engaging in telehealth services. Telehealth interventions reduce the need for transportation, as many individuals can access therapy services using the computer and internet connection within their own home (Racine et al., 2020). Emphasizing the use of telehealth delivery of therapy services can increase accessibility to treatment for those for whom transportation is a significant barrier. This benefit also can be extended to families living in rural communities who are not geographically close to a physical clinic (Owen, 2020). Additionally, participation in telehealth services can decrease the financial strain that is often placed on families due to transportation and childcare costs (Soares & Langkamp, 2012). Practitioners can highlight all of these facilitators for telehealth implementation of treatment by advertising the lack of need for transportation to a clinic, lower financial burden, and higher accessibility to high-quality services.

Summary

As discussed above, child trauma is defined as a dangerous or frightening event that the child may be directly harmed by or may indirectly witness (NCTSN, 2020). Traumatic events include natural disasters, community violence, sudden deaths of loved ones, abuse, and neglect. Symptoms of child trauma may involve 1) reliving the traumatic experience through nightmares, 2) engaging in harmful physical or sexual behaviors, 3) displaying increased depressive, anxious, or other negative affective symptoms, 4) avoiding any potential triggers for the trauma, and 5) exhibiting disruptive behavior problems (Scheeringa et al., 2011; Brooks et al., 2019). Due to the detrimental impact that untreated trauma can have on a child's social-emotional development, executive functioning, interpersonal relationships, and mental health, it is imperative that trauma be treated as early as possible (Cohodes et al., 2020; Paul et al., 2006; John et al., 2019; Williams, 2020). Evidence-based treatment approaches include EMDR, TF-CBT, exposure therapy, and PCIT, and these approaches are similar in that they help the child develop coping strategies and resilience regarding their traumatic experiences. Additionally, the trauma-informed parenting program known as *Smart Start: Parenting Tools for Children with Developmental Delay, Social-Emotional Concerns, and Trauma* has demonstrated positive initial outcomes through reductions in caregivers' ratings of their children's disruptive behaviors and caregivers' reported parenting stress, as well as through increases in caregivers' knowledge of their child's trauma symptoms (Agazzi et al., 2019; Dickinson, 2018). Finally, many trauma-informed parent training programs have sought to deliver content through a telehealth modality, which has increased caregivers' access to resources and care. Based on the aforementioned information, it is critical that future research continue to assess both caregiver and child outcomes of trauma-informed parent training interventions, particularly related to child behavior,

child trauma, parenting stress, and caregiver knowledge of child trauma. Specifically, further research is needed regarding telehealth adaptations of such trauma-informed curricula.

Chapter 3:

Methods

Introduction

This study sought to assess the changes in caregivers' ratings of 1) their children's disruptive behavior problems, 2) their children's trauma symptoms, 3) their own parenting stress, and 4) their acceptability of treatment after participating in a telehealth adaptation of the trauma-informed parent training program *Smart Start: Parenting Tools for Children with Developmental Delay, Social-Emotional Concerns, and Trauma* (Agazzi et al., 2018). The research questions for this study were answered through multiple rating scales and questionnaires given to caregivers before, during, and after treatment. The purpose of this study was to inform practitioners of changes in treatment outcomes in a telehealth-delivered trauma-informed parent training program. This chapter outlines research questions, the overall research design and study procedures, participants and setting for the study, data analysis processes, ethical considerations, limitations, and contributions to the literature surrounding this area of research.

Research Design

This quantitative study used a nonconcurrent multiple baseline design, meaning that participants began the intervention phase of treatment at separate time points. The reason for selecting this study design is because nonconcurrent designs allow for flexibility when selecting and recruiting study participants as well as the study location. Additionally, with this type of design a large number of participants is not necessary to demonstrate a significant treatment

effect (Harvey, May, & Kennedy, 2004). Rather, treatment effect was analyzed through the extent of positive change in each dyad's outcome data included in the study. The independent variable for this study was the provision of the Smart Start program. All caregivers received this intervention, but each caregiver began the intervention at a different time, discussed in more detail in the Procedures section of this document. Caregivers completed four different questionnaires throughout the study in order to monitor their perceived changes in treatment outcomes, which served as the dependent variables for this study. These treatment outcomes included child disruptive behavior, child trauma symptoms, caregiver parenting stress, and caregiver acceptability of the telehealth-delivered Smart Start program. Data were analyzed with descriptive statistics, visual analysis, hierarchical linear modeling, and the Wilcoxon Signed-Rank test, which the primary investigator hoped would provide a multitude of research implications for practitioners using telehealth parent training programs.

Participants

Participants were four caregiver-child dyads enrolled in the Smart Start program. Enrollment took place through self-referral or through referral of a clinician, based on dissemination of study flyers. Caregivers were at least 18 years old and included biological and adoptive parents of the child. Children were between the ages of three and six years in order to meet age requirements of both the child relevant outcome measures used in this study and the Smart Start curriculum. Specific demographic characteristics of the four caregiver-child dyads included in this study are outlined in further detail in the dyad summaries below, as well as Table 2, which provides caregiver demographic information, and Table 3, which provides child demographic information. A broad overview is provided for each child's traumatic experiences,

but specific details are omitted out of respect for the families involved and to uphold the confidentiality and anonymity of the families.

The children who participated in this study exhibited disruptive behaviors, which typically included verbal aggression (e.g., saying hurtful statements, swearing), physical aggression (e.g., hitting, kicking, biting), task refusal, and/or tantrums. In order to be included in this study, caregivers needed to endorse an intensity score of 131 or higher on the Eybeg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) regarding their child's disruptive behavior. In addition, the caregiver-child dyads in this study were included because each child displayed symptoms of trauma that fell into the clinical range, as demonstrated by a minimum score of 26 on the Young Child PTSD Checklist (YCPC; Scheeringa, 2014), and had a history of trauma, defined by the YCPC as the child's exposure to one or more of the following conditions: 1) vehicle accident, 2) animal attack, 3) man-made disasters, 4) natural disasters, 5) hospitalization, 6) physical abuse, 7) sexual abuse, 8) burn accidents, 9) near drowning, 10) witnessing another person being seriously harmed, or 11) kidnapping. Two of the four caregivers endorsed "other" on the YCPC and provided other examples of traumatic stress experienced by the child (see below dyad summaries). In such cases, the primary investigator referred to the NCTSN and the literature base to determine if these other incidents/stressors could be considered traumatic for the purposes of this study. Information on child traumatic stress and the current research indicate that experiencing divorce, witnessing threat of harm towards a caregiver, and experiencing verbal abuse constitute potential sources of child traumatic stress (Lange et al., 2021; NCTSN, 2020). As a result, these factors were included in this study. Finally, all caregivers demonstrated reliable access to a computer and to a stable internet connection, demonstrated by the family owning a computer, laptop, or tablet within

the home that was able to access the Microsoft Teams application, a webcam feature, and a microphone.

Dyad 1. The first dyad was enrolled in the study for 15 weeks, with seven weeks of baseline and eight weeks of intervention. The dyad consisted of the female caregiver Abby and her biological daughter Anna (pseudonyms used for all children and caregivers to maintain confidentiality). Also living in the home were Abby's husband Albert and older pre-adolescent son. Both Abby and Anna identified as White/Caucasian and not Hispanic/Latino. Anna was four years old at the beginning of the study. Abby was divorced and remarried, with Anna visiting her biological father once a week. Abby stated that Anna was having difficulty adapting to Abby's new husband Albert living in the home. Anna attended a typical public preschool education program. Regarding current behavioral, developmental, medical, and/or mental health conditions, Abby noted that Anna had received a clinical diagnosis of oppositional defiant disorder (ODD) at age 3. Abby described Anna's previous traumatic experiences as physical abuse from adults outside the home when Anna was a toddler.

It is important to note that although Dyad 1 had not participated in any other parent training program prior to Smart Start, they did enroll in the program Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS; Agazzi, 2018) and began this treatment during the second intervention session. As a result, data from this dyad in particular was analyzed with caution, as the potential treatment effect of HOT DOCS may have confounded the treatment effect of Smart Start regarding child and caregiver outcomes.

Dyad 2. The second dyad was enrolled in the study for 11 weeks, with three weeks of baseline and eight weeks of intervention. The dyad consisted of the female caregiver Barbara and her biological son Billy. Also living in the home was Barbara's younger son, who was a toddler.

Barbara identified as White/Caucasian and not Hispanic/Latino. She identified Billy as two or more races, White/Caucasian and African-American. Billy was six years old at the beginning of the study. Barbara was divorced, with Billy visiting his biological father once a week. Barbara stated that Billy appeared to be having difficulty with the divorce by asking questions about his parents "getting back together". Billy attended a public elementary school and participated in the general education classroom. Regarding current behavioral, developmental, medical, and/or mental health conditions, Barbara noted that due to behavioral concerns in the classroom and during extracurricular activities, Billy's school was planning to assess him for attention deficit hyperactivity disorder (ADHD). Barbara described Billy's previous traumatic experiences as the stressful nature of the separation of his parents, with legal action taken against his biological father for threat of harm towards Barbara, some of which Billy witnessed.

Dyad 3. The third dyad was enrolled in the study for 13 weeks, with five weeks of baseline and eight weeks of intervention. The dyad consisted of the female caregiver Cathy and her adopted son Cody. Also living in the home was Cathy's wife Catie and Cathy's three adolescent children. Cathy identified as White/Caucasian and not Hispanic/Latino. She identified Cody as two or more races. Cody was three years old at the beginning of the study. Cathy adopted Cody when Cody was a baby, and Cody had periodic contact with his biological mother. He did not communicate with his biological father. Cody did not attend any preschool program, but Cathy noted that she planned to homeschool him. Regarding current behavioral, developmental, medical, and/or mental health conditions, Cathy noted that Cody experienced a traumatic head injury as a baby that required hospitalization. This resulted in Cody having significant speech and communication delays until around a year ago, when he quickly began to acquire verbal communication skills with the assistance of a speech therapist. Cathy described

Cody's previous traumatic experiences as his traumatic head injury due to physical abuse by adult biological relatives.

Dyad 4. The fourth and final dyad was enrolled in the study for 11 weeks, with three weeks of baseline and eight weeks of intervention. The dyad consisted of the female caregiver Donna and her biological son David. Also living in the home was Donna's younger daughter, who was a baby. Both Donna and David identified as White/Caucasian and not Hispanic/Latino. David was three years old at the beginning of the study. Donna expressed that she and her husband were in the process of separating, and that her husband was not living in the home. However, he did stop by each day to visit the children. David attended a public preschool program in an inclusive classroom where he received behavior support through a behavior analyst in the classroom. Regarding current behavioral, developmental, medical, and/or mental health conditions, Donna noted that David had received a clinical diagnosis of autism spectrum disorder (ASD) at age 2. Donna described David's previous traumatic experiences as significant verbal and emotional abuse from an adult relative, as well as the ongoing separation of his parents. Donna expressed concern that David did not comprehend the separation process.

Table 2

Demographic Characteristics of Caregivers

Name	**Gender**	**Race**	**Marital Status**	**Relationship to Child**	**Number of Children**	**Education Level**	**Household Income**
Abby	Female	White	Married	Biological	Two	Advanced degree	$50,000 and above
Barbara	Female	White	Divorced	Biological	Two	Bachelor's degree	$50,000 and above
Cathy	Female	White	Married	Adoptive	Four	Advanced degree	$50,000 and above
Donna	Female	White	Separated	Biological	Two	Bachelor's degree	$50,000 and above

Table 3

Demographic Characteristics of Children

Name	Gender	Race	Age	Education	Diagnoses/ Conditions	Traumatic Experience(s)
Anna	Female	White	4 years	Public preschool	ODD	Physical abuse
Billy	Male	Two or more races	6 years	Public elementary school	None	Witnessing threat of harm to relatives
Cody	Male	Two or more races	3 years	None	Communication delay	Physical abuse
David	Male	White	3 years	Public preschool (inclusive classroom)	ASD	Verbal/emotional abuse

Setting

The Smart Start program had previously been offered in clinical and university settings. During this study, the program took place entirely through a telehealth modality. Specifically, Microsoft Teams was used to facilitate weekly sessions with caregiver-child dyads, as it is HIPAA-compliant (HIPAA Journal, 2019). Under HIPAA regulations, clients' private information was protected and secured (US Department of Health and Human Services, 2020). Caregivers and the primary investigator utilized the camera sharing function of Teams in order to conduct coaching and therapy strategies. Caregivers and their children were in their homes during these sessions in order to maximize the effects of learning within a natural environment. The primary investigator was either in her home or in a clinical setting when these sessions occurred. The primary investigator collaborated with each caregiver to set up a consistent weekly time to hold virtual sessions, and sessions were rescheduled as needed based on the availability

of both the caregiver and the primary investigator. Smart Start content itself was not modified, but visuals and handouts were distributed as PDF files through email rather than physically given to participants.

Data Collection Measures

Demographic data were gathered through a demographic questionnaire, described below. The dependent variables for this study were scores on the measures known as the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), the Young Child PTSD Checklist (YCPC; Scheeringa, 2010), the Parenting Stress Index, Fourth Edition-Short Form (PSI-4-SF; Abidin, 2012), the Therapy Attitude Inventory (TAI; Eyberg, 2002), and the Young Child PTSD Screen (YCPS; Scheeringa, 2012). Each of these assessment tools is discussed in further detail below. The primary investigator monitored the progress of each dyad by graphing data and using visual analyses.

Demographic questionnaire. Data pertaining to demographic information of both caregivers and their children were collected at the beginning of the study, during the first baseline session, through use of a demographic questionnaire (see Appendix A). This questionnaire is taken from the program known as *Helping Our Toddlers, Developing Our Children's Skills* (HOT DOCS; Agazzi et al., 2018). Caregiver-related items on this measure include age, gender, race, ethnicity, household structure, level of education, relationship to child (e.g., biological parent, adoptive parent, foster parent, grandparent, other), marital status, type of employment, and household income. Child-related items on this measure include age, gender, race, ethnicity, diagnoses, and daily living (e.g., home, daycare, pre-kindergarten/preschool, kindergarten). Child diagnoses on the demographic questionnaire include no diagnosis, developmental delay, speech/language delay, intellectual disability, autism spectrum disorder, sensory processing

problems, ADHD, oppositional defiant disorder, anxiety, feeding difficulties, and other. If caregivers select "other", they may choose to write down additional diagnoses for their child that are not listed in the options.

Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). Caregivers rated their children's behaviors with the ECBI once a week (not included in Appendices due to copyright). Additionally, the ECBI was used as a screening tool, with a minimum intensity score of 131 necessary for study inclusion. The ECBI is composed of 36 items addressing a variety of disruptive behaviors exhibited by children. These behaviors include whining, screaming, arguing with adults, dawdling when given demands, noncompliance with demands, physical aggression, verbal aggression, and property destruction (Eyberg & Pincus, 1999). The ECBI has two scales, including the intensity scale, which outlines different disruptive behaviors that children may engage in, and the problem scale, which addresses whether or not a behavior is problematic for the caregiver. On the intensity scale of the ECBI, caregivers indicate how often each disruptive behavior occurs for their child. Answers are measured on a Likert scale with responses ranging from 1 ("Never") to 7 ("Always"). A score of 131 or higher on the intensity scale indicates that the child's behavioral issues are in the clinically significant range. On the problem scale of the ECBI, caregivers choose "yes" or "no" to indicate whether or not the given behavior is a problem for them. Every "yes" is counted as one point, and every "no" is counted as zero points. A score of 15 or higher on the problem scale indicates that the child's behavioral issues are causing their caregiver significant levels of distress. Completion of the ECBI takes roughly 10 minutes. Regarding psychometric properties, the ECBI has demonstrated high test-retest reliability (α=.75), high internal consistency (α=.93-.95), and acceptable inter-rater reliability (α=.61-.79) (Calzada,

Eyberg, Rich, & Querido, 2004; Funderburk, Eyberg, Rich, & Behar, 2003). In addition, the ECBI has demonstrated both high content and construct validity (Boggs, Eyberg, & Reynolds, 1990).

Young Child PTSD Checklist (YCPC; Scheeringa, 2010). Caregivers also completed the YCPC once during the final session of treatment (see Appendix B for a copy of this measure). Additionally, the YCPC was used as a screening tool, with a minimum symptom score of 26 necessary for study inclusion. The YCPC contains 42 questions and is split into three sections. The first section requires the caregiver to select 0 ("no") or 1 ("yes") to indicate whether a list of potentially traumatic experiences has happened to their child, including car accidents, natural disasters, abuse, and witnessing of violence (Scheeringa, 2010). In this section, caregivers are able to write the age when the trauma occurred and how often it occurred. Caregivers must indicate that their child has had at least one traumatic experience on this measure in order to qualify for inclusion in this study. The second section of the YCPC addresses the frequency of trauma symptoms in children, including intrusive thoughts, re-enaction of the trauma during play, nightmares, reliving the trauma, physical and emotional distress, fear, guilt/shame, avoidance, irritability, and aggression. Answers are on a Likert scale and range from 0 ("Not at all") to 4 ("Everyday"). The final section of the YCPC assesses the child's functional impairment as a result of their trauma symptoms and covers the domains of school, public places, and social interactions (Scheeringa, 2010). Answers are on a Likert scale and range from 0 ("Hardly ever/none)" to 4 ("Everyday"). Scores on this measure are deduced from gathering the sum of all responses. If the score on trauma symptoms is at or above 26 when all responses on the trauma symptom section are tallied, or if the score on functional impairment is at or above four when all responses on the functional impairment section are tallied, then the child would fall into the clinical range of PTSD. The YCPC takes about 10-15 minutes to complete. Existing psychometric evidence indicates that

the YCPC has acceptable test-retest reliability (α=.61) and good concurrent criterion validity when compared to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (Scheeringa & Haslett, 2010).

Parenting Stress Index, Fourth Edition-Short Form (PSI-4-SF; Abidin, 2012). In addition, caregivers completed the PSI-4-SF once during the orientation session and once during the final session of treatment (not included in Appendices due to copyright). The short form of this measure contains 36 items and has three subscales: parental distress, parent-child dysfunctional interactions, and difficult child (Abidin, 2012). Questions on the PSI-4-SF include items related to the caregiver's perception of their child, factors related to parenting, and behaviors exhibited by the child that impact the caregiver-child relationship. Answers are on a five-point Likert scale including SA ("strongly agree"), A ("agree"), NS ("not sure"), D ("disagree"), and SD ("strongly disagree"). A total stress score is obtained from these subscales. Individual subscales on the PSI-4-SF can also be calculated. Items 1-12 make up the Parental Distress scale, items 13-24 make up the Parent-Child Dysfunctional Interactions scale, and items 25-36 make up the Difficult Child scale (Abidin, 2012). A total stress score at or above 85 indicates parenting stress within the clinical range. Completion of the PSI-4-SF takes roughly 10-15 minutes. Psychometric properties of this measure are considered acceptable to high, with test-retest reliability (α=.84) and internal consistency (α=.91; Baker et al. 2003; Reitman, Currier, & Stickle, 2002). In addition, the PSI-4-SF has demonstrated high overall validity (Deater-Deckard & Scarr, 1996).

Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg, Chase, Fernandez, & Nelson, 2014). The primary investigator assessed caregivers' interactions with their children through use of the DPICS measure taken directly from PCIT, specifically the child-led scenario and the clean-up scenario. Each scenario lasted five minutes. During these scenarios, the primary

investigator coded each verbalization made by the caregiver to the child. In following PCIT protocol regarding each DPICS scenario, the coded verbalizations during the child-led and clean-up scenarios are outlined below in Table 4. In the child-led scenario, the primary investigator observed caregiver-child interactions and coding for neutral talk, behavior descriptions, reflections, labeled praises, unlabeled praises, negative talk, questions, direct commands, and indirect commands. In the clean-up scenario, the primary investigator coded for direct commands, indirect commands, and the child's compliance, noncompliance, or inability to comply, as well as if the caregiver followed up compliance with a labeled praise. Coding sheets for these scenarios can be found in Appendix C.

Table 4

Coding Procedures for Child-Led and Clean-Up Scenarios

Code	Description and Examples
Neutral talk	• Caregiver makes a statement describing environment, objects, or own actions o Example: *I am going to play with blocks, too.*
Behavior description	• Caregiver describes what child is doing o Example: *You are driving the car on the road.*
Reflection	• Caregiver repeats some part of what child is saying o Example: *You are right- it is a red ball.*
Labeled praise	• Caregiver praises specific behavior child is engaging in o Example: *Thank you for picking up the toys!*
Unlabeled praise	• Caregiver praises child, but not for specific behavior o Example: *Nice job!*
Negative talk	• Caregiver makes a negative or critical statement regarding what the child is doing o Example: *Trees are not purple.*
Questions	• Caregiver asks the child a question o Example: *What are you making now?*

Table 4 (Continued)

Direct command	• Caregiver gives the child a clear, specific direction ○ Example: *Please hand me the toy pizza.*
Indirect command	• Caregiver gives the child an unclear, vague direction ○ Example: *Can you clean up?*
Comply	• Child complies with caregiver command within five seconds of receiving command
Does not comply	• Child does not comply with caregiver command within five seconds of receiving command
No opportunity to comply	• Child is not able to comply because the caregiver gives a new command or engages in another activity within the five second interval

Therapy Attitude Inventory (TAI; Eyberg, 2002). Caregivers completed the TAI during the final session of treatment (see Appendix D for a copy of this measure). The TAI includes 10 questions regarding caregivers' perceptions of various treatment factors. These factors include discipline techniques learned in the program, the caregiver-child relationship, the child's behavior problems, techniques learned in the program that help teach the child new skills, and other general or family problems (Eyberg, 2002). Answers are on a five-point Likert scale and range from 1 ("nothing", "much worse than before", "much less confident", "considerably worse", "very dissatisfied", "hindered more than helped", "very poor", "I disliked it very much") to 5 ("many useful techniques", "very much better than before", "much more confident", "greatly improved", "very satisfied", "helped very much", "very good", "I liked it very much"). Items are scored with lower program satisfaction resulting in a lower TAI score and higher program satisfaction resulting a higher TAI score. Scores can range from 10 to 50. Typically scores of 40-50 indicate high acceptability of treatment, while scores of 10-30 indicate low acceptability of treatment. The TAI

takes about 5-10 minutes to complete. Regarding psychometric properties, the TAI has been shown to have high reliability (α=.91), good test-retest reliability (α=.85), and acceptable internal consistency (α=.78; Brestan et al., 1999).

Young Child PTSD Screen (YCPS; Scheeringa, 2012). During the fifth treatment session of Smart Start, caregivers completed the YCPS (Scheeringa, 2012; see Appendix E for a copy of this measure). This measure has six items related to caregivers' perceptions of their children having intrusive symptoms, irritability, and fear symptoms. Response choices include 0 ("no"), 1 ("a little"), and 2 ("a lot"). If a caregiver endorses two or more items on this screen, then their child may meet positive criteria for trauma, and the primary investigator will discuss further referrals for additional assessment and intervention, including referrals for individual counseling/therapy services and referrals for psychological services specializing in treatment of trauma symptoms. If a caregiver endorses only one item, then their score is marginally positive, and the primary investigator will have a conversation with them regarding their interest in pursuing additional trauma services such as the ones listed above. The YCPS takes approximately 5 minutes to complete. Initial psychometric evidence for the YCPS has demonstrated promising results, indicating high face validity and acceptable reliability, although further research regarding this measure's psychometric properties is still needed (Scheeringa, 2019).

Procedures

Initial screening. Participants for this study were recruited through convenience sampling. Flyers containing information on the study, as well as inclusion criteria, were distributed at local pediatric care clinics, trauma centers, and university clinics. The primary investigator provided her phone number and email address for caregivers to contact. If the caregiver contacted the primary investigator, the primary investigator obtained verbal consent to partake in a screening procedure

over the phone. If the caregiver gave verbal consent for this procedure, the primary investigator verbally collected answers for two screening measures, the ECBI and YCPC. If the caregiver endorsed a minimum intensity score of 131 and a minimum trauma symptom score of 26, then that caregiver-child dyad was eligible for inclusion in this study. These screening scores also served as the baseline data points. If minimum scores were not achieved, then the caregiver was not included in the study but was directed to additional trauma-related resources. In addition, during this phone screening the primary investigator verified that the caregiver was at least 18 years of age and that the child was at least two to six years of age, and questions regarding the caregiver's device use and internet access were asked to ensure that the appropriate technology was available to the caregiver for participation in this study. Appropriate technology was defined as a modality for caregivers to use Microsoft Teams, a microphone device, and a webcam function. Finally, caregivers were asked in this telephone screening if they had ever participated in another type of dyadic intervention services, such as PCIT, HOT DOCS, or CPP. If the caregiver and child had participated in such a service previously, they were not included in the study due to confounding effects of past treatment gains.

Consent. During the telephone screening, the primary investigator discussed the consent form and read it in its entirety with the caregiver, outlining the study procedures and risks. If the caregiver verbally indicated consent to participate in this study, as well as verbally gave parental permission for the child to participate in the study, then the primary investigator wrote the caregiver's responses on the consent form. The signed consent form was then emailed to the caregiver for their own records. It was the primary investigator's hope that five caregiver-child dyads enrolled in the study, but one dyad did not complete treatment and as a result was not included in this study.

Pre-Baseline phase. During the screening session which was prior to baseline, the primary investigator verbally collected demographic data from the caregiver via a demographic questionnaire developed for another parent training program (HOT DOCS; Agazzi, Childres, & Armstrong, 2018; see Appendix A). This measure contains items related to the age, gender, race, ethnicity of both the adult and the child. The demographic questionnaire also includes questions regarding caregivers' parenting status (i.e., biological, adoptive, other relative) and marital status, as well as the highest levels of income and education within their households. Other questions on the measure specific to children involve the child's current diagnoses and daily living status (i.e., preschool, daycare, at home, etc.).

Baseline phase. Prior to entering the Smart Start program, each caregiver-child dyad attended a virtual one-on-one orientation session with the primary investigator. Before beginning the orientation session, the primary investigator emailed caregivers an online administration form of the PSI-4-SF for completion. After caregivers filled out this measure, the obtained scores served as the first points of the baseline range. In addition, the primary investigator followed the Smart Start outline for the orientation session, including taking time to build rapport with the families, explaining the purpose and layout of the Smart Start program, using the Traumatic Stress Storyboard, and observing caregiver-child interactions within their natural home environment (Agazzi et al., 2018). All dyads participated in at least three weekly sessions of baseline treatment, including the orientation session. During the subsequent baseline sessions, the primary investigator spent time building rapport with caregivers, providing trauma-related resources, and observing caregiver-child interactions while collecting CDI data through the DPICS assessment, specifically the child-led scenario. Resources that were provided included the following: 1) National Child Traumatic Stress Network, which provides general information and resources surrounding child

trauma, 2) Magination Press Children's Books (American Psychological Association, 2021), a subsidiary of the American Psychological Association that contains stories on child trauma, 3) Child Welfare Information Gateway (2021), which contains resources specific to children in the foster care system, 4) Zero to Three (2021), an ongoing initiative that addresses child trauma through the provision of psychoeducational resources for caregivers, and 5) the International Society for Traumatic Stress Studies (2021), which offers caregivers current studies regarding child trauma and supporting treatments.

Intervention phase. Through random selection, each dyad received the remaining eight weeks of the Smart Start intervention after three, five, or seven weekly baseline sessions. This randomization procedure consisted of the primary investigator writing down the digits *3*, *5*, and *7* on three pieces of paper, placing the pieces of paper in a container, shaking the container, and then pulling out one digit per dyad. When one of the three digits was pulled from the container, it was not put back into the container until the other two digits had been pulled. Once each of the three digits were pulled, meaning three dyads had been assigned their baseline lengths, all digits were returned to the container for the remaining two dyads. Typically, in nonconcurrent multiple baseline designs, a second dyad is not enrolled in the intervention phase until the first dyad demonstrates a treatment effect. However, because of the delayed treatment effect shown through previous research (Agazzi et al., 2019; Dickinson, 2018) and by less frequent completion of the YCPC and PSI-4-SF outcome measures, the phases of treatment occurred as explained above. For the one dyad who was assigned to the seven-week baseline phase, the primary investigator emphasized the benefits of the Smart Start program, the provision of resources, and the maintaining of rapport to ensure the caregiver perceived the value of participating in this extended

baseline phase and still wished to continue the study. Additionally, the primary investigator helped normalize the waiting experience by explaining typical waitlist procedures for other therapies.

The intervention phase lasted eight weeks and was delivered to each caregiver-child dyad in their home through telehealth. The primary investigator, who has a master's degree in a mental health field and is qualified to deliver this parenting intervention based on previous training in other parent training programs including PCIT, met with the caregiver-child dyad through Microsoft Teams once a week for a 1-hour long session. Each session included education and implementation of socio-emotional tips (SE-TIPS; Agazzi et al., 2018) that promoted self-care and therapy skills for caregivers to use with their children. In addition, each session involved practice of Child-Directed Interaction (CDI; Blair et al., 2020) in order to improve caregiver-child interactions. Specific topics of each Smart Start session are described in more detail in Table 1. After each session, the interventionist emailed the caregiver a link to an online administration form of the ECBI to complete for the following week. If the caregiver had not yet completed the ECBI after three days of receiving it, then the primary investigator gently reminded the caregiver via email to complete the measure. If the caregiver did not complete the ECBI before the subsequent session, then the primary investigator had them complete it at the beginning of said session. This occurred six times with Dyad 2 and three times with Dyad 4. During the fifth session, the caregiver also received and completed a PDF copy of the YCPS (Appendix E) in order to determine need for additional trauma services. Prior to the final session, the primary investigator emailed the caregiver PDF copies of the YCPC and the TAI, and a link to an online administration form of the PSI-4-SF.

During both baseline and intervention phases for each dyad, the primary investigator created and maintained progress notes outlining what happened during each session, including

where the caregiver and child were located, what data were collected, what Smart Start components were discussed and practiced, and what other concerns or questions the caregiver had for the primary investigator. Any crises or plans to follow up with a university supervisor also would have been mentioned in these notes, had such action been warranted. All progress notes were password-protected Microsoft Word documents stored on an external USB drive that the primary investigator transferred files to from a personal laptop.

Data Analysis

As stated in Chapter 1, the research questions for this study were as follows:

1. Do caregivers' ratings of their children's disruptive behavior problems decrease in frequency and intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
2. Do caregivers' ratings of their children's trauma symptoms decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
3. Do caregivers' ratings of their parenting stress levels decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
4. Do caregivers engage in more positive interactions with their children after participating in a telehealth adaptation of Smart Start?
5. How do caregivers perceive the acceptability and feasibility of a telehealth adaptation of Smart Start?

In order to answer the first three questions regarding changes in caregivers' ratings of their children's disruptive behaviors and traumatic symptoms, as well as their own parenting stress, the Wilcoxon Signed Rank Test was used. In addition, caregivers' ratings of their

children's behaviors was further analyzed with hierarchical linear modeling (HLM) analyses to assess differences within and across caregiver-child dyads. To answer the fourth question, caregiver-child interactions were coded and graphed each week, and descriptive statistics were used to analyze the graphed data. Finally, to answer the fifth question regarding caregivers' acceptability of the telehealth adaptation of this trauma-focused parent training program, descriptive statistics were utilized. The software that was used for data analysis was the Statistical Package for the Social Sciences (SPSS; IBM Corp. 2020).

Wilcoxon signed-rank test. The Wilcoxon signed-rank test was used in place of a *t*-test to analyze differences in pre-test and pos-test scores on the ECBI, YCPC, and PSI-SF-4. This form of analysis was selected because it is a non-parametric measure, thus eliminating the need for a normally distributed sample (Laerd Statistics, 2018). Due to the small sample size in this study, it was expected that the data may not be normally distributed. One assumption of the Wilcoxon signed-rank test is that the variables used must be on an ordinal or continuous scale (Laerd Statistics, 2018). Ordinal data includes Likert responses, which was consistent with the measures used in this study. Additionally, all data in this study were independently gathered, and dyads were assigned randomly to treatment order. Another assumption is that the independent variable must be measured at two or more different points. Because caregivers were completing the ECBI, YCPC, and PSI-4-SF multiple times during the study, this assumption also was met. Finally, it was expected that if caregivers' scores change over time in a positive direction, then the study would demonstrate a significant treatment effect. The Wilcoxon signed-rank test was conducted using the SPSS software. The p-value was set to 0.05 assuming all five dyads completed the study, as there was a 50% chance that a treatment effect would be present for each dyad, or 0.5 x 0.5 x 0.5 x 0.5 x 0.5= 0.016. An a priori decision was made to adjust the p-value to

0.10 if fewer than five dyads completed the study, reflecting a 50% chance of a treatment effect for each dyad, or 0.5 x 0.5 x 0.5 x 0.5=0.063.

Multi-level modeling. The multi-level modeling procedure known as hierarchical linear modeling (HLM) was used to synthesize caregivers' ECBI ratings both within each caregiver-child dyad and among all caregiver-child dyads in the study. HLM was chosen for this research design because it tends to manage random effects in the data, and it can reduce mistakes in data interpretation (Garson, 2013). Level 1 models analyzed each caregiver's ratings on the ECBI, and level 2 models analyzed changes across caregiver-child dyads. This data analysis procedure was similar to one that was used in a previous research study regarding the efficacy of Smart Start (Dickinson, 2018). An assumption of HLM modeling is that there must be two phases in the data (Kratochwill & Levin, 2014), which in this study were the baseline and intervention phases. Other assumptions of the HLM modeling procedure are that the data must be autocorrelated and demonstrate a trend. Thus, if the data in this study showed a general positive trend, then the trend assumption would be met. Again, HLM modeling was conducted using SPSS.

Ethical Considerations

Prior to beginning this study, Institutional Review Board (IRB) approval was gained by the primary investigator in order to ensure that all ethical guidelines were being met with the upmost quality. All families were given a consent form to sign prior to being included in this study. They chose to participate in this study by signing the consent form, and they had the option to decline to sign the form if they felt uncomfortable participating. The consent form discussed limits of confidentiality, lack of harm towards participants, and other relevant ethical guidelines. In order to remain HIPAA-compliant, the application Microsoft Teams was used to provide this training virtually, as its security features have been proven to meet all HIPAA

standards (HIPAA Journal, 2019). One ethical consideration was that some dyads would remain in baseline for a longer period of time than others. To ensure that each dyad received services regardless of their status in baseline or intervention phases, the primary investigator continued to collect CDI data for each dyad, administered measures, and provided general community resources for trauma during the baseline phase. This process allowed families to receive services and supports while waiting to enter the intervention phase. Finally, in order to help maintain confidentiality within treatment sessions, the primary investigator encouraged caregivers to find private spaces in their homes to have their sessions whenever possible, as is recommended for best practices in telehealth delivery of therapy services (Briere et al., 2020). Additionally, the primary investigator asked each caregiver where they were at the beginning of each session to ensure privacy and confidentiality, and if the caregiver was in a public space, the primary investigator rescheduled the session for a time when the caregiver was at home or in a private area. At the beginning of each session, the primary investigator also verified the caregiver's phone number, as well as an emergency contact number, in case a crisis arose during the session. To help prepare for potential crises that might have required contacting an emergency contact of emergency services, the primary investigator engaged in ongoing supervision with multiple university supervisors regarding best practices in addressing such situations.

Chapter 4: Results

Introduction

The purpose of this study was to examine the outcomes of the Smart Start trauma-focused parent training program, specifically changes in caregivers' ratings of their children's disruptive behavior problems and trauma symptoms, their own parenting stress, and their acceptability of the telehealth adaptation of Smart Start. The research questions were as follows:

1. Do caregivers' ratings of their children's disruptive behavior problems decrease in frequency and intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
2. Do caregivers' ratings of their children's trauma symptoms decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
3. Do caregivers' ratings of their parenting stress levels decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?
4. Do caregivers engage in more positive interactions with their children after participating in a telehealth adaptation of Smart Start?
5. How do caregivers perceive the acceptability and feasibility of Smart Start?

The results of this study are divided into four sections. First, preliminary data analyses, including demographic information, are summarized. Missing data also are addressed in this section relative to DPICS data. Second, the results of the Wilcoxon signed-rank test are

discussed in relation to changes in scores on the ECBI, YCPC, and PSI-SF-4 from pre-test to pos-test. The third section expands upon results of a hierarchical linear modeling (HLM) analysis used to synthesize caregivers' ECBI ratings within each dyad and among all dyads. Specifically, level 1 models focused on each caregiver's ECBI scores, while level 2 models focused on changes across dyads. Fourth, a discussion regarding caregivers' TAI scores is provided with use of descriptive statistics. Finally, a general summary of the results, in addition to implications for statistical significance, is described to the end of this section.

Preliminary Data Analyses

Demographic data were collected from each dyad who participated in this study (see Tables 2 and 3 in Chapter 3). Data from the four dyads who completed the study are included in these results. Data from the fifth dyad was not included in analysis due to the dyad discontinuing the study prior to completion. All caregivers requested early/late evening session times, with session start times ranging from 4pm-7:30pm. Sessions took place on both weekdays and weekends. All four dyads had complete attendance and either attended their original weekly appointment or requested a rescheduled session time with the primary investigator if the initial appointment was unable to be met.

Missing Data

There were no missing data in ECBI scores, as the primary investigator collected this information from caregivers during the session if they did not complete the measure prior to the session. Likewise, there were no missing data in PSI-4 or YCPC scores, as these were pre-test and pos-test measures that were completed live with the caregivers. However, there were three missing data points in DPICS assessment scores. This was due to children being sick or having unexpected visits with other family members. There were two missing data points in DPICS

scores for Dyad 1 and one missing data point in DPICS scores for Dyad 2. It was not anticipated that these missing scores significantly impacted the reliability or validity of changes in DPICS scores over time, due to continued practice of positive play skills outside of sessions.

Visual Analysis

A masked visual analysis was conducted to analyze the level of change from baseline to intervention. Each dyad's ECBI intensity scores were graphed and then de-identified, with phase change lines and dyad numbers removed from the graphs. In addition, because the shortest duration of baseline and intervention was 11 weeks, the other dyads with longer durations lost their final 2 and 4 intervention data points, respectively. For example, in the dyad with 13 data points, the final 2 data points were removed from their graph. In the dyad with 15 data points, the final 4 data points were removed from their graph. As a result, each dyad's graph displayed 11 data points. Three faculty members trained in single case design were tasked in identifying which dyads were assigned to 3, 5, and 7 week-long baseline phases. After each faculty member determined which dyad entered which baseline length, the p-value was obtained by dividing the number of faculty members' guesses regarding baseline assignments by the number of possible baseline assignments. This number of possible assignments was calculated by considering that all 3 baseline lengths were available, and as each dyad was assigned to a length, the number of available assignments decreased. For example, after Dyad 1 was assigned to the 7-week baseline, the 7-week option was removed from the assignment possibilities until the 3-week and 5-week options were assigned. Then all 3 options were reinstated as possibilities for Dyad 4. The masked visual analysis did not demonstrate a statistically significant result, with only Dyad 4 identified correctly as being assigned to the 3-week baseline by all three reviewers. If all dyads would have been correctly assigned to their respective baseline lengths by the reviewers, this would have

indicated statistical significance for all dyads. Below are data for each dyad's ECBI intensity and problem scores recorded throughout the baseline and intervention phases (see Figures 1 and 2 on pages 56 and 57, respectively). Intensity scores and problem scores showed a decreasing trend across both study phases, which may have affected results of the visual analysis.

Wilcoxon Signed-Rank Test

Child behavior. Child behavior was assessed through weekly ECBI intensity scores. Due to the expected lack of normal distribution in the data as a result of the small sample size, the non-parametric Wilcoxon Signed-Rank test was used in lieu of a *t*-test analysis. As stated previously, the significance level was set to 0.10 to reflect the number of dyads whose data were included in this study. Results of the Wilcoxon Signed-Rank test indicated that the post-test ECBI intensity scores were statistically significantly lower than the pre-test ECBI intensity scores for all dyads ($Z=-1.83$, $p < 0.0625$). These results are similar for the other outcomes assessed with the Wilcoxon Signed-Rank test, indicating a decreasing trend for all outcome measures. These data can be found in Table 5 below which provides the Wilcoxon Signed-Rank test results for child behavior, child trauma symptoms, and parenting stress.

Table 5

Results of Wilcoxon Signed-Rank Test

	Mean Pre-Test	SD Pre-Test	Mean Post-Test	SD Post-Test	Z	P-Value
ECBI Intensity Scores	176.75	17.67	108.25	10.53	-1.826	0.0625
ECBI Problem Scores	24.50	5.75	9.00	6.06	-1.826	0.0625
YCPC Scores	54.50	6.95	6.75	2.75	-1.826	0.0625
PSI-4-SF Scores	113.00	22.61	77.00	1.83	-1.826	0.0625

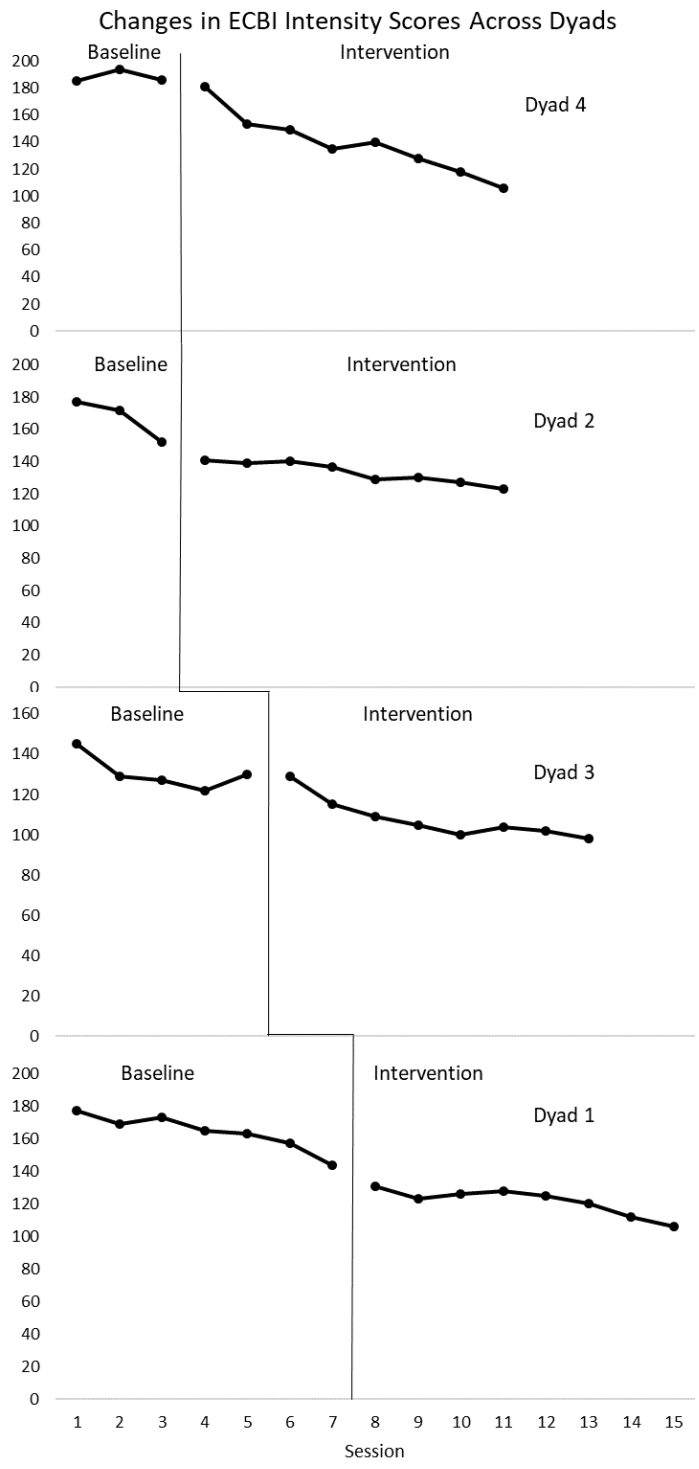

Figure 1

Changes in ECBI Intensity Scores Across Dyads

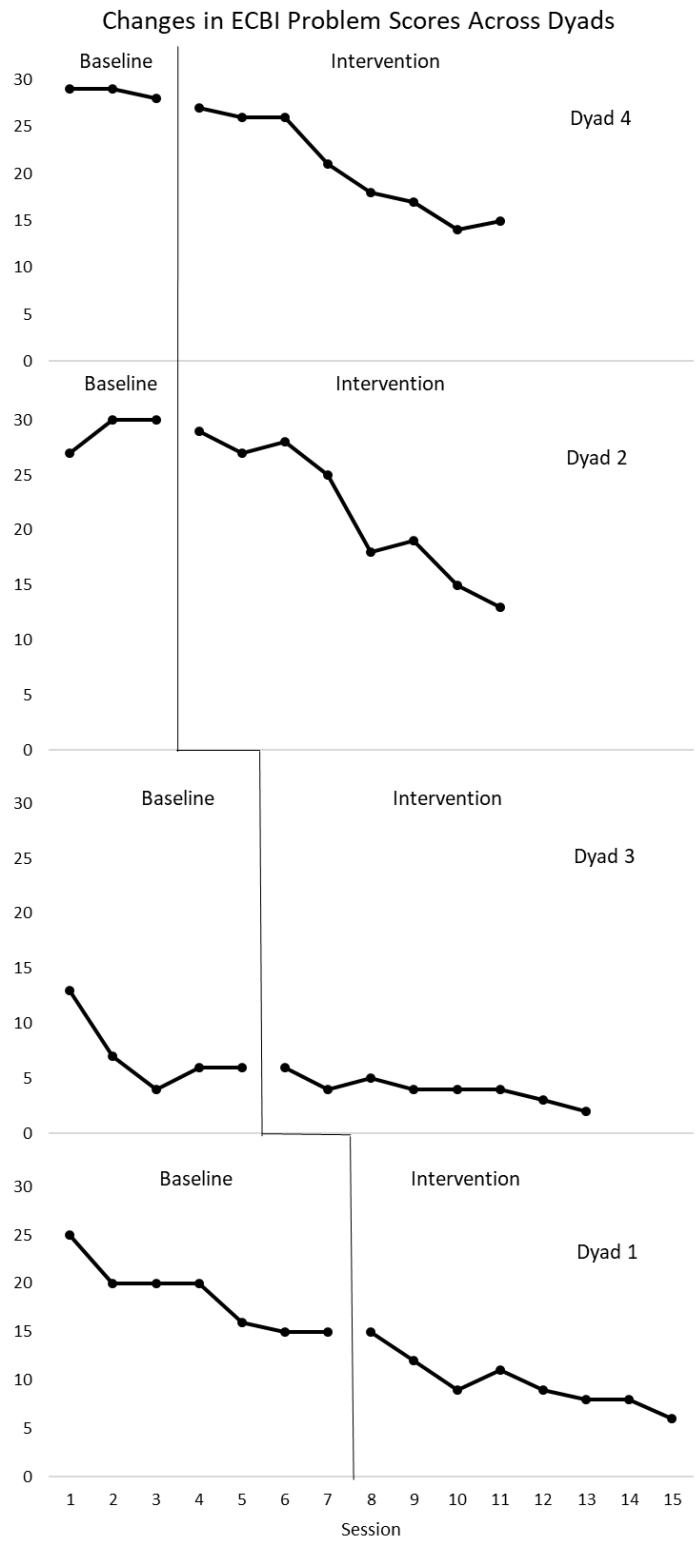

Figure 2

Changes in ECBI Problem Scores Across Dyads

Child trauma symptoms. Regarding child trauma symptoms, the Wilcoxon Signed-Rank test was used to analyze pre- and post-test scores on the YCPC (see Table 5). Pre-test scores on the YPC ranged from 48 to 61, each score landing above 26 and thus falling into the clinically significant range for trauma symptoms. By contrast, post-test scores on the YCPC ranged from 4 to 10, with no score falling within the clinically significant range. After conducting the Wilcoxon-Signed Rank test with a significance level of 0.10, results indicated that the post-test YCPC total scores were statistically significantly lower than the pre-test YCPC scores across all dyads ($Z = -1.826$, $p < 0.0625$). Figure 3 below also displays the differences in YCPC scores from pre-test to post-test for each dyad.

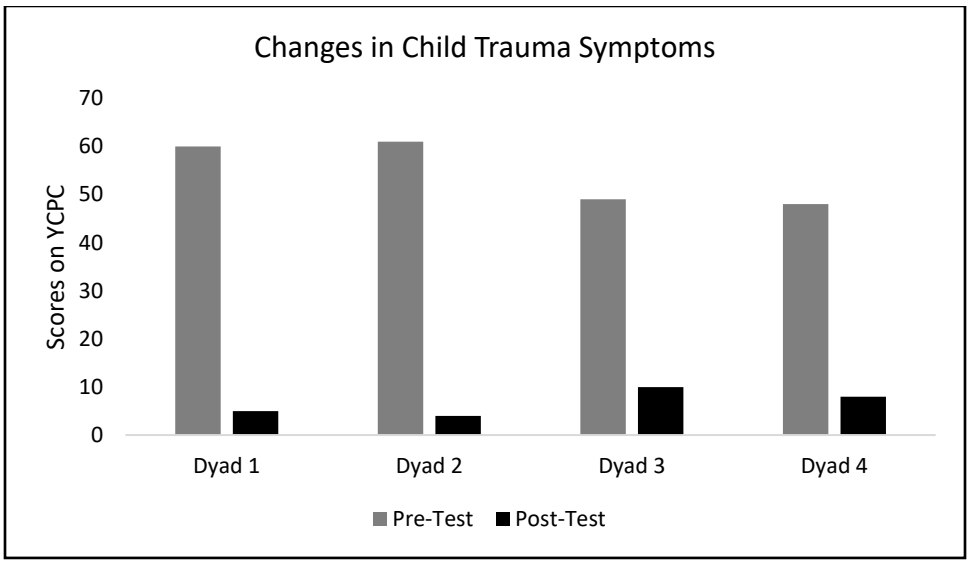

Figure 3

Changes in Trauma Symptoms Across Dyads

Parenting Stress. The Wilcoxon-Signed Rank test also was used to analyze pre- and post-test scores on the PSI-4-SF (see Table 5). Pre-test scores on the PSI-4-SF ranged from 82 to 133, with all but one score landing above 85 and thus falling into the clinically significant range

for parenting stress. Similar to the other outcomes discussed in this study, post-test scores on the PSI-4-SF were lower, ranging from 75 to 79, with no score falling within the clinically significant range. The Wilcoxon-Signed Rank test indicated that the post-test PSI-4-SF total scores were statistically significantly lower than the pre-test PSI-4-SF scores when compared to the 0.1 level of significance across all dyads ($Z = -1.826$, $p < 0.0625$). Figure 4 displays the differences in total stress scores on the PSI-4-SF from pre-test to post-test for each dyad.

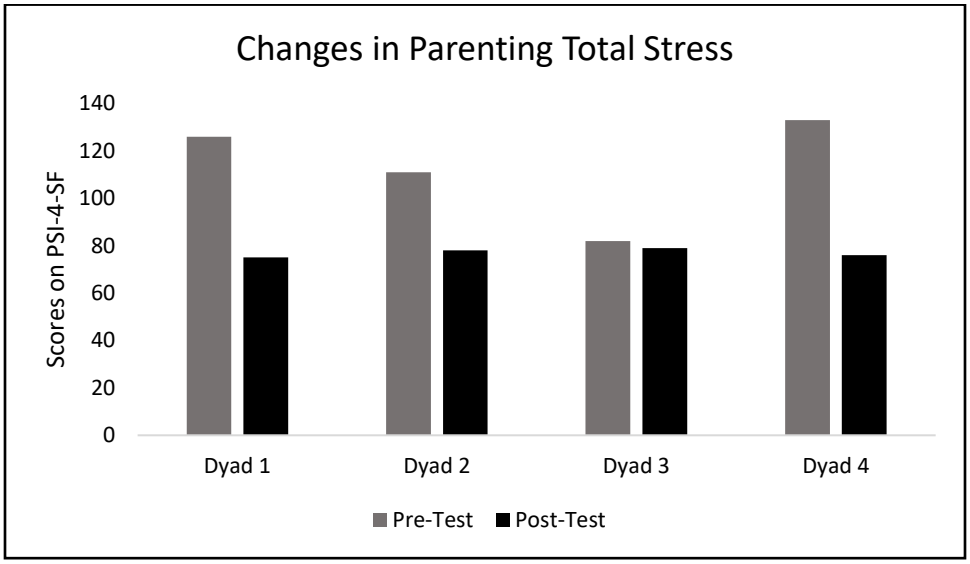

Figure 4

Changes in Total Parenting Stress Across Dyads

Hierarchal Linear Modeling

In addition to assessing ECBI intensity scores with the Wilcoxon Signed-Rank test, the primary investigator also conducted hierarchical linear modeling analyses on these scores. Level 1 analyses addressed ECBI intensity scores within each caregiver-child dyad, and level 2 analyses addressed scores across the caregiver-child dyads when compared to the average calculated values. As shown in Table 6 below, results indicate that the treatment effect of Smart Start appears to have contributed to reductions in child problem behavior ($t=-1.28$, $p=0.25$, 95%

CI=[-25.03, 8.06]). However, this effect was not statistically significant at the 0.05 level, indicating that the Smart Start intervention alone may not have had a substantial impact on child behavior. However, there is a statistically significant deceasing trend in the data beginning in the baseline phase of the study (t=-4.66, p<.0001, 95% CI=[-6.45, -2.86]). The slope present during the intervention phase was negative yet not statistically significant when compared to the slope at baseline (t=0.08, p=0.94, 95% CI=[-2.05, 2.22]). Thus, although there is a steadily decreasing trend in ECBI intensity scores for each dyad, the intervention trend was not significantly more pronounced than the baseline trend.

Table 6

Solution for Fixed Effects

Effect	Estimate	Standard Error	DF	t-value	Pr >|t|	Alpha	Lower	Upper
Intercept	149.75	12.45	3.32	12.03	0.0007	0.05	112.22	187.28
Phase	-8.48	6.65	5.61	-1.28	0.2522	0.05	-25.03	8.06
Time	-4.66	0.89	45.20	-5.22	<.0001	0.05	-6.45	-2.86
Phase*Time Interaction	-0.09	1.06	44.70	0.08	0.9350	0.05	-2.05	2.22

When studying ECBI intensity scores across dyads, it is important to compare each dyad's difference in their first intervention score from the predicted next score if the baseline phase were continued. Figure 5 illustrates this concept, comparing the next expected baseline data point with the actual data point achieved in the first intervention session. No dyad demonstrated any statistically significant variability in their phase estimates when compared to the phase estimate in the fixed effects table. As Table 7 shows, some dyads did experience a higher difference, particularly Dyad 4. These data align with the masked visual analysis, in which Dyad 4 was the only group whose baseline length was guessed correctly. As a result, both

levels 1 and 2 of the hierarchical linear modeling process demonstrate a decreasing yet non-significant trend in ECBI intensity scores for all dyads who completed the study. These results are consistent with the results from the Wilcoxon Signed-Rank test.

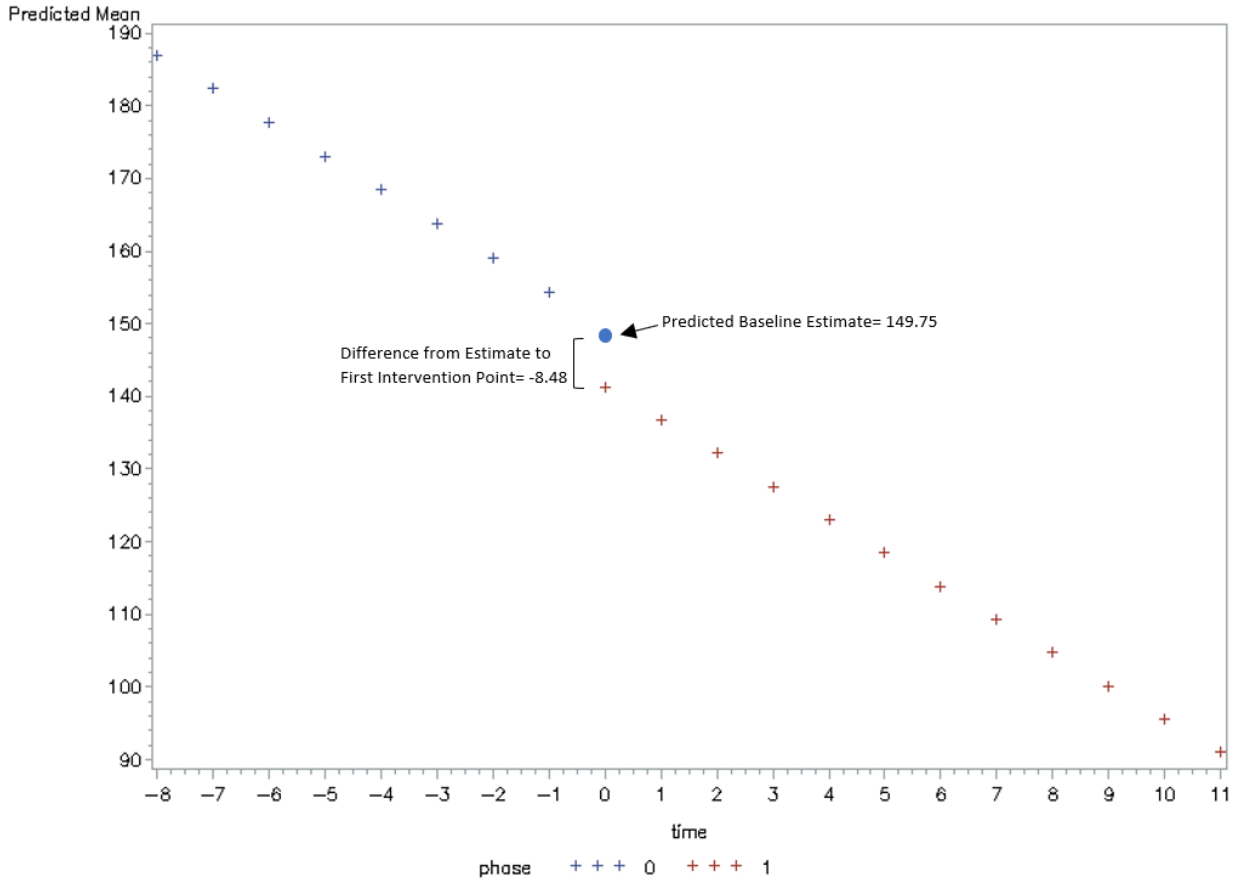

Figure 5

Illustration of Differences in Phase Estimates

Table 7

Solution for Random Effects

	Phase Estimate	Difference from Fixed Estimate	t-value	Pr>|t|
Dyad 1	0.55	-7.93	0.09	0.9358
Dyad 2	-1.41	-9.89	-0.21	0.8421
Dyad 3	12.24	3.76	1.92	0.1307
Dyad 4	-11.39	-19.87	-1.73	0.1582

Caregiver-Child Interactions

The quality of caregiver-child interactions was assessed each week in five-minute intervals by the primary investigator using the DPICS coding sheet. By the end of the intervention phase, each caregiver had increased their use of behavior descriptions, reflections, and labeled praises, described in the Smart Start manual as "do" skills. Figure 6 (see page 63) outlines the changes over time for each dyad pertaining to the frequency of using "do" skills during each weekly five-minute interval. Behavior descriptions (e.g., "you are stacking the blocks", "you are drawing a tree", "you are driving the car", etc.) were coded as "BD". Reflections (i.e., restating whatever the child says) were coded as "RF". Finally, labeled praises (e.g., "nice job sitting at the table", "great listening", "thank you for cleaning up", etc.) were coded as"LP".

Acceptability of Treatment

Acceptability and feasibility of treatment was assessed through the TAI completed during the final session of the Smart Start intervention. Individual dyad TAI scores are provided in more detail in Table 8 (see page 64). Total scores on the TAI could range from 0-50, with 50 indicating that every item was endorsed as highly acceptable and/or feasible. Results of descriptive statistics conducted on caregivers' TAI scores indicated a mean total score of 48.75 (SD=.957). Regarding item-level scores, which could range from 1-5, the mean score per question item was 4.88 (SD=0.335). Areas on the TAI that were consistently rated a 5 (e.g., greatly improved, very satisfied, etc.) by all dyads included learning new techniques for teaching children skills, implementing new disciplinary strategies, improving the caregiver-child relationship, and increasing parenting confidence. Areas that were rated a 4 (e.g., somewhat improved, somewhat satisfied, etc.) included changes in the child's compliance with demands

and changes in major behavior problems at home. Thus, it appears that the Smart Start intervention delivered through telehealth demonstrates a high rate of caregiver acceptability.

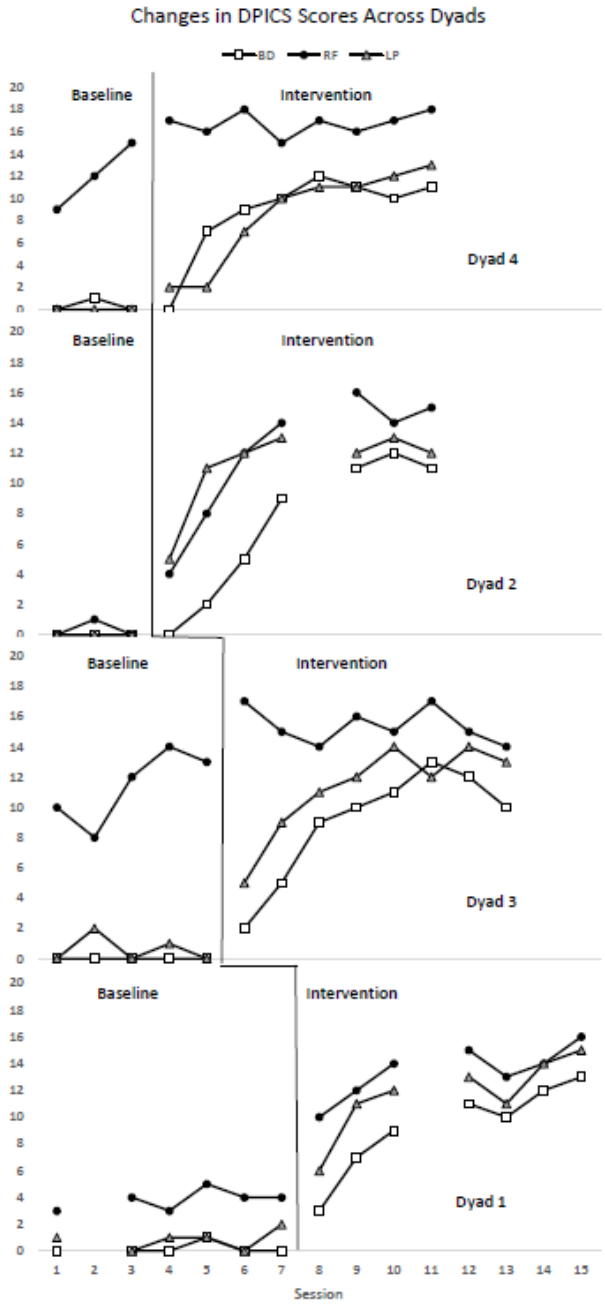

Figure 6

Changes in DPICS Scores Across Dyads

Table 8

Caregiver TAI Scores

	Raw Score	Mean Item Score	SD
Dyad 1	50	5.0	0.00
Dyad 2	48	4.8	0.42
Dyad 3	48	4.8	0.42
Dyad 4	49	4.9	0.32

Summary

Results demonstrate a positive trend across child behavior, child trauma symptoms, and parenting stress, with post-test scores lower than pre-test scores in each domain. Additionally, at the end of the study no child was within the clinically significant range for behavior or traumatic stress, and no caregiver was within the clinically significant range for parenting stress. This indicates that there was improvement for each dyad who completed the study. However, there is no statistically significant treatment effect regarding the introduction of the Smart Start program itself, as positive effects began during baseline. This is further supported by the masked visual analysis, in which only one of the four dyads was correctly matched to its corresponding baseline length. The therapeutic alliance may be one factor that could have affected the salience of the treatment effect because the caregiver was still meeting with the primary investigator for approximately an hour each week during the baseline phase. Additional research is needed to analyze this variable, as considered in more detail in the discussion section of this document.

Results of the hierarchical linear modeling analysis show that the Smart Start intervention may have had a treatment effect on reductions in child problem behavior, but this treatment

effect was not statistically significant. The decreasing trend in child behavior data, beginning in the baseline phase, is shown to be statistically significant. However, the lack of statistical significance from baseline to intervention phases indicates that there may be other factors aside from Smart Start impacting the changes in ECBI scores. Finally, caregivers endorsed high levels of acceptability with the Smart Start program, which supports the implementation of Smart Start to individual families in a telehealth modality, although further research is needed to assess specific factors related to telehealth delivery. Overall, it appears that caregivers found Smart Start helpful in allowing them to learn new techniques for managing their children's behaviors and appreciated participating in the program.

Chapter 5: Discussion

Introduction

The purpose of this study was to evaluate treatment outcomes of Smart Start by assessing changes in children's disruptive behaviors, children's trauma symptoms, and caregivers' parenting stress, and caregivers' acceptability of the program. Previous research highlighted the many positive outcomes of parenting interventions regarding children's disruptive behaviors, but there is a gap in the literature surrounding trauma-informed parent training programs, especially for younger children (Mavranezouli et al., 2019). In addition, telehealth delivery of such programs is under-studied, although the limited research on telehealth programs addressing children's mental health concerns has been positive (Gloff, LeNoue, Novins, & Myers, 2015). The trauma-informed parent training program used in this study is Smart Start, which incorporates PCIT strategies and places emphasis on improving the caregiver-child relationship, children's trauma symptoms, and children's disruptive behavior problems. Initial outcomes of Smart Start research indicate positive outcomes across child behavior and parenting stress (Agazzi et al., 2019; Dickinson, 2018). The primary investigator hopes that this study will help inform telehealth implementation of trauma-focused parent training programs, both in clinical practice and in research.

This discussion is divided into several sections pertaining to the study results. First, demographic characteristics of each dyad will be addressed, as this information can inform future research with the Smart Start program. Second, each research question will be evaluated based on the results and subsequent implications. These research questions address changes in

caregiver ratings regarding child problem behavior, child trauma symptoms, and parenting stress. In addition, caregiver ratings on the TAI will be further explored in order to determine the acceptability of Smart Start. Finally, the discussion will focus on study limitations and future implications for practitioners and researchers. It is the primary investigator's hope that the results of this research will assist clinicians in delivering the Smart Start program through a telehealth modality to caregivers and their children.

Demographic Characteristics

Attendance. All four dyads who completed this study attended all of their respective baseline and intervention sessions. Attendance was documented on a physical paper form on which the primary investigator would mark if the dyad attended each session. If a dyad was not able to make the originally scheduled session time, they collaborated with the primary investigator to identify an alternate time to meet. In the cases of Dyad 1 and Dyad 2 the child was absent from the session two times and one time, respectively. This was due to the child either being ill or staying with another caregiver. For these sessions, DPICS data were not collected. Although the children were not exposed to the intervention content or DPICS intervals during these sessions, overall DPICS data and other treatment outcomes still improved for each dyad. Caregivers also practiced utilizing session content with their children throughout the subsequent week. In addition, the children in Dyad 1 and Dyad 2 still maintained high session attendance rates of 87% and 91%, respectively.

Caregiver demographics. All caregivers who completed this study where Caucasian/White females. Two of the caregivers were married, one was divorced, and one was separated from their significant other. Three of the four caregivers were the biological parent of their child, with the fourth caregiver being the adoptive parent of their child. All four caregivers

had earned at least a Bachelor's degree, with two caregivers earning an advanced degree. Finally, all four caregivers earned a household income of at least $50,000 per year. It is evident that this study sample is somewhat homogenous. This factor will be further discussed in the Limitations section of this document.

Child demographics. All children who completed the study were between the ages of three and six years. Three of the four children were male, and one child was female. Two of the children were Caucasian/White, and the other two children were two or more races. Diagnoses differed widely among the children in this study, with one child having no diagnoses as of treatment, one child having a diagnosis of Oppositional Defiant Disorder, one child having a diagnosis of Autism Spectrum Disorder, and the last child having a diagnosed communication delay. All children exhibited trauma symptoms and problem behaviors, making them eligible to receive the Smart Start treatment. Additionally, results show a positive treatment effect of Smart Start on children across the different diagnoses of each child. This may indicate that Smart Start is effective for children with a variety of developmental and behavioral clinical diagnoses. However, further exploration of the impact of child diagnosis on the effectiveness of Smart Start should be explored in future studies.

Interpretation of Results

Research question 1. Do caregivers' ratings of their children's disruptive behavior problems decrease in frequency and intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?

Results of the Wilcoxon Signed-Rank test indicate that there was a decreasing trend in caregiver ratings of their children's behavior problems, both regarding frequency and intensity (i.e., intensity and problem scores). This indicates that child behavior problems experienced

improvement throughout the study, and none of the final ECBI scores for each child were within the clinical range of concern. Figures 1 and 2 in Chapter 4 also show this trend based on visual analysis. These results align with previous Smart Start research, which has demonstrated overall improvement in children's disruptive behaviors (Agazzi et al., 2016; Agazzi et al., 2019; Dickinson, 2018). The hierarchical linear modeling analyses conducted in this study support a similar decreasing trend in the data, beginning in the baseline phase. Previous research on Smart Start utilizing hierarchical linear modeling analyses have demonstrated similar results, indicating that there may be a multitude of contributing factors that may lead to improvements in child behavior within and across study dyads (Dickinson, 2018).

The decrease in child behavior ratings, while occurring during Smart Start treatment, also began before implementation of the intervention for at least three of the four dyads, based on the masked visual analysis. Thus, it cannot be stated that improvement across child behavior outcomes was due exclusively to the introduction of Smart Start. One possibility for this trend extending across both baseline and intervention phases is the theory that the therapeutic alliance between the primary investigator and each dyad prior to the intervention phase may have contributed to some level of positive change (Flückiger, et al., 2012). Multiple research studies have found that there is a moderate yet reliable effect of the therapeutic alliance, or the working relationship between the clinician and the client, on treatment outcomes, regardless of which type of intervention is utilized (Ardito & Rabellino, 2011; Horvath et al., 2011). This theory should be explored in future research surrounding implementation of the Smart Start program, particularly when individualized to the family's needs.

Research question 2. Do caregivers' ratings of their children's trauma symptoms decrease in intensity from pre- to post- test as a result of receiving a telehealth adaptation of Smart Start?

Similar to changes in ECBI scores, YCPC scores also decreased across baseline and intervention phases (see Figure 3). One positive effect of this decrease is that each dyad's final YCPC score was below the clinical range of concern. These results also align well with previous Smart Start research that has demonstrated improvements in children's trauma symptoms, with very few children displaying trauma symptoms within the clinical range after treatment (Agazzi et al., 2019). Of note, this decreasing trend in YCPC scores began during the baseline phase. As a result, it is unclear whether the decrease in child trauma symptoms was entirely due to the implementation of Smart Start. Again, previous research surrounding the modest yet robust effects of the therapeutic alliance on treatment outcomes may suggest that the positive relationship between the primary investigator and each dyad should be considered (Ardito & Rabellino, 2011; Flückiger, et al., 2012; Horvath et al., 2011). During baseline sessions, the primary investigator reviewed the predetermined trauma resources mentioned earlier in this document, including the National Child Traumatic Stress Network, Magination Press Children's Books, Child Welfare Information Gateway, Zero to Three, and the International Society for Traumatic Stress Studies. Perhaps these resources also may have contributed to improvements in child trauma symptoms during the baseline phase. Further research is needed to determine the separate treatment effects of each of these resources. Regarding this research question, the results do not demonstrate a clear treatment effect from baseline to intervention for changes in child trauma symptoms.

Research question 3. Do caregivers' ratings of their parenting stress levels decrease in intensity from pre- to post-test as a result of receiving a telehealth adaptation of Smart Start?

Results of the Wilcoxon Signed-Rank test indicate that changes in parenting stress scores also demonstrate a decreasing trend across both baseline and intervention phases. Similar to the other results presented in this study, these positive changes in data align with the existing research surrounding the Smart Start program, which has demonstrated caregivers' parenting stress levels falling below or staying below the clinical range upon treatment (Agazzi et al., 2019; Dickinson, 2018). Like child behavior and child trauma symptoms, parenting stress began decreasing steadily during the baseline phase. The potential effect of the therapeutic alliance, as described above, may apply most strongly to this outcome, as well. Particular to this outcome, past research also has shown that parenting stress can decrease when the caregiver accesses additional outside sources of support (Richardson et al., 2018). Caregivers may have rated their parenting stress lower throughout the weeks simply because they were able to access the primary investigator as a resource once a week. Additionally, continued positive interactions with their children through the CDI practice during sessions may have contributed to a decrease in parenting stress. This theory has been supported in previous research on PCIT and specifically the CDI phase of treatment (Landsem et al., 2014; Parlade et al., 2020).

Research question 4. Do caregivers engage in more positive interactions with their children after participating in a telehealth adaptation of Smart Start?

Analysis of the data demonstrates an increase in positive interactions between caregivers and their children throughout Smart Start. As shown in the Figures 5-8, caregivers began with limited numbers of labeled praises, behavior descriptions, and reflections. Once coaching in child-directed interactions began, each caregiver eventually increased their frequency of these

positive skills. By the end of treatment, all caregivers were consistently providing their child with at least 10 of each type of statement during a five-minute play period. Likewise, improvement occurred across questions and commands. All caregivers in this study asked their children multiple questions during baseline. Once the primary investigator began coaching child-directed interactions at the onset of intervention, the number of questions steadily decreased until caregivers were actively avoiding them altogether. Commands also became more direct as a result of coaching and with the addition of the time-out procedure. Only Dyad 1 and Dyad 4 reported needing to use the timeout procedure by the time it was introduced in treatment, and they each reported only having to use time out one and two times with their child, respectively. These results demonstrate that the ongoing coaching present in Smart Start is a valuable component and can lead to improvements in the quality of caregiver-child interactions. Previous studies have shown similar outcomes in caregiver-child interactions, with caregivers reporting improvements in their interactions with their children (Agazzi et al., 2016; Agazzi et al., 2019; Dickinson, 2018). These results also correlate with previous PCIT research, specifically related to the positive outcomes associated with consistent practice of CDI (Gurwitch et al., 2017).

Research question 5. How do caregivers perceive the acceptability and feasibility of Smart Start?

Caregivers reported high TAI scores, indicating a high level of acceptability with the Smart Start treatment. Anecdotally, caregivers expressed that Smart Start content was easy to understand, session times and lengths were feasible, and use of technology allowed them to access the program in a more convenient way. All caregivers in this study endorsed scores of 5 on the TAI regarding improvements in their knowledge of behavior management strategies and discipline techniques, in addition to improvements in their parenting confidence. Previous Smart

Start research also has demonstrated overall positive perceptions of treatment acceptability among caregivers participating in the program (Agazzi et al., 2016; Agazzi et al., 2019; Dickinson, 2018). Based on these results, it appears that Smart Start delivered through telehealth shows initial acceptability and feasibility, and additional research should expand upon these results to determine if these perceptions are maintained across treatment populations.

Implications for Practitioners

The primary investigator hopes to add to the literature base regarding telehealth implementation of trauma-informed parent training programs like Smart Start. With the onset of the COVID-19 pandemic, the provision of telehealth mental health services has become increasingly relevant for both practitioners and researchers. However, there is limited research surrounding the use and effectiveness of telehealth-delivered, trauma-informed parent training programs (Mavranezouli et al., 2019). Additionally, past studies have shown that many families who are confined to their homes during the COVID-19 pandemic may experience an increase in domestic violence and abuse, highlighting the increased need for child trauma services (NCTSN, 2020). The existing statistics related to child trauma emphasize the need to address the trauma symptoms experienced by young children (Briggs-Gowan et al., 2010). Thus, practitioners should consider this study as they determine the needs of the children and families they serve, as well as determining how telehealth interventions can improve client outcomes. Results of this study indicate that Smart Start has the potential to demonstrate a positive treatment effect across dyads when administered through telehealth.

This study also sought to analyze treatment outcomes of Smart Start because the program targets multiple behavioral and mental health domains (i.e., child behavior, child trauma, parenting stress). It is the primary investigator's hope that this study informs other trauma-

informed parent training programs regarding the incorporation of multiple treatment outcomes. Specifically, it is important to note that child problem behaviors, child trauma symptoms, and caregiver stress all decreased during the course of this study. This indicates that Smart Start may improve multiple characteristics across both caregiver and child domains. It is critical that practitioners continue to collect data on both behavior and trauma symptoms in a program like Smart Start, in which both outcomes may be affected. In addition, parenting stress should always be considered in a parent training program like Smart Start, as ideally one would see this outcome affected by implementation of the program, as well.

Limitations

A prominent limitation of this current study was the small sample size, with only four caregiver-child dyads taking part. However, this sample size is consistent with the What Works Clearinghouse regulations for high-quality single-case design research, in which a minimum of three demonstrations must be present to show a treatment effect (What Works Clearinghouse, 2015). The treatment effect was determined based on the extent of positive change in outcome data across the four dyads, and this effect helped strengthen the validity of the sample size. However, the small sample size rendered some statistical analyses less powerful due to the lack of specificity in the calculated test statistics and other values.

Another limitation of this study was the still-ongoing COVID-19 pandemic, which may have hindered participants' availability and accessibility of treatment. In order to help control for issues brought on by COVID-19, the primary investigator decided to only use telehealth for the provision of the intervention used in this study. This decision removed the possibility of having to switch from in-person to telehealth services in the middle of treatment, a switch which would have potentially compromised the client's comfort and convenience

regarding services and may have had a secondary impact on the validity of the data. Additionally, in order to help control for caregivers' knowledge of Microsoft Teams, the primary investigator devoted time during the orientation session reviewing the basic functions of the application. The primary investigator also ensured that each caregiver had reliable access to a device able to access the Internet and the Microsoft Teams software (e.g., computer, laptop, tablet) prior to beginning the study. In order to address the limitation of technological issues that may arise during sessions, the primary investigator developed a plan during the beginning of the first session with each caregiver in case of such difficulties, such as loss of Internet access, software crashing, or software functions not working. Specifically, during the orientation session the primary investigator reviewed the basic functions of Microsoft Teams with the caregiver, including how to mute/unmute video and audio, how to rejoin the session if necessary, and how to use the chat feature. If technology difficulties were to arise, the primary investigator would call the caregiver to complete the session over the phone. However, this issue never arose throughout the study. All caregivers in the study expressed having prior experience using Microsoft Teams.

A third limitation of this study was the inability of the primary investigator to identify an exclusive treatment effect of Smart Start on the study outcomes. While a small sample size certainly played a role in this lack of specificity, other variables also contributed. One such variable was the participation of the caregiver and child from Dyad 1 in another parent training program during the intervention phase of this study, which made it virtually impossible to determine whether or not changes in outcomes were due solely to Smart Start, solely to the other program, or a combination of the two programs. It should be noted that this other parent training program does not address trauma symptoms in young children and mainly focuses on disruptive

behaviors. The primary overlapping elements of Smart Start and this other program are the positive play skills assessed through DPICS and the assessment of challenging behaviors through the ECBI. Another variable that made the treatment effect of Smart Start more difficult to determine was the decreasing trend of behavior, trauma symptoms, and parenting stress across both baseline and intervention phases. Future research would benefit from taking the time to parse apart some of these factors and analyzing their potential effects.

Finally, a fourth limitation is that no short- or long-term maintenance data were collected after the intervention phase of this study ended. Thus, it is not possible to determine whether the intervention effects were maintained in the following months. Future studies utilizing this program should add a maintenance phase at a later point in time to analyze how child behavior, child trauma symptoms, parenting stress, and parent-child interactions continue to change after completion of the Smart Start program.

Future Directions

Subsequent research should focus on multiple factors discussed in the present study. First, while small sample sizes are acceptable for experiments utilizing a single case design, future research could analyze the effects of Smart Start with larger sample sizes. Specifically, a randomized control trial should be conducted in which study participants are randomly assigned to either the Smart Start program or a control condition. A study of this caliber would further validate the effectiveness of Smart Start on child and caregiver outcomes. Additionally, as a randomized control trial is considered a gold standard in research, conducting this type of study with Smart Start would potentially increase the reliability and validity of the program for both clinical and research populations. Smart Start may also be conducted in a group-delivered modality, although the effects of caregivers discussing their children's traumatic experiences

may confound the treatment effects. If group designs are considered in future research, special attention should be given to the comfort level of caregivers in sharing these sensitive details.

Second, more diverse samples also should be considered. This sample contained exclusively White female caregivers who all earned at least $50,000 per year. Future study samples should include more diversity across race, ethnicity, gender, and household income. Along the same lines, various children's diagnoses should be considered when implementing Smart Start. This study included multiple different diagnoses, and future research could expand upon the types of diagnoses present in the children that Smart Start may treat. This may not only include developmental disabilities and behavioral disorders, but also various medical conditions present in the children served by the program. Additional research in this area can help practitioners better understand which diagnoses could potentially affect treatment outcomes.

Third, aspects of telehealth delivery of Smart Start should be studied in further detail. Although this study examined caregivers' acceptability of the Smart Start program itself, telehealth factors were not parsed out in the TAI. Specific variables that should be assessed include families' access to and knowledge of technology, caregivers' comfort level with using technology for therapy sessions, and adequate support in using relevant technology from the practitioner. Future social validity research could assess caregivers' perceived acceptability of treatment when delivered through telehealth to ensure that this type of modality is feasible and convenient for families. This type of research will determine whether or not modifications are needed to the telehealth delivery of Smart Start through in order to improve treatment outcomes and caregiver satisfaction.

Finally, results of this study indicate that there are multiple variables at play when attempting to identify treatment effects. One such variable is the therapeutic alliance itself,

which may be sufficiently positive to create some level of improvement in outcomes. Another variable is the family's participation in co-occurring interventions, which may confound the treatment effects of Smart Start. It is critical that future research control for family participation in additional parent training interventions, particularly regarding treatment of child behavior or child trauma symptoms. Future research should consider analyzing each potential variable that may impact improvement in child and caregiver outcomes, as well as the treatment effect of Smart Start itself, while controlling for these other variables. This may prove to be a complex process, but it will better inform practitioners and researchers about the effectiveness of Smart Start in addition to other relevant treatment factors.

Conclusions

Based on this study, it appears that Smart Start may have a positive effect on treatment outcomes for caregivers and their children who are exhibiting behavior problems and trauma symptoms. However, it is important to consider that these positive effects seem to begin in the baseline phase and then extend into the intervention phase, indicating that there may be other variables not directly assessed in this research. One such variable may be the therapeutic alliance between the primary investigator and each dyad. Regardless, all dyads who completed this study demonstrated reductions in child behavior problems, child trauma symptoms, and parenting stress. In addition, all dyads demonstrated increases in the quality of the caregiver-child relationship. Thus, while the exact treatment effect of Smart Start is unknown, there is sufficient evidence to warrant future analysis of this intervention with larger and more diverse samples.

Due to the increasing need for telehealth services in a time of uncertainty, practitioners must consider adapting their existing treatment programs accordingly. When Smart Start was delivered through telehealth, caregivers expressed high levels of acceptability with the program

itself. This indicates that there is potential for such programs to be delivered through telehealth and still have a positive impact on both treatment outcomes and client acceptability. Practitioners should continue to gather feedback from the families they serve, particularly as they transition some treatment practices to telehealth. In addition, practitioners should collaborate with families to ensure that there is adequate access to the technology and skills needed to access telehealth interventions.

Finally, this study, as well as the Smart Start program itself, emphasizes the need to consider the multiple overlapping symptomology that traumatic stress may elicit in children, including behavioral and mental health presentations. It is critical that practitioners take into account all possible treatment outcomes when implementing any program, and Smart Start is careful to consider how traumatic stress may affect young children through externalizing behaviors, fear responses, and other relevant symptomology. This program highlights the importance of knowing the populations one serves and how trauma and behavior can intersect at each developmental stage. It also is necessary to address the impact of such effects of traumatic stress in children on their caregivers and to promote positive caregiver mental health throughout the treatment process. Smart Start actively seeks to improve outcomes for both children and caregivers, and the results of this study highlight its potential and provide a rationale to further assess this program.

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APPENDICES

Appendix A: Demographic Questionnaire*

Demographic Questionnaire – Parent/Caregiver

ADULT PARTICIPANT INFORMATION SECTION: **Please fill out the following information for the adult who is attending.**		
Participant Name: _____ (first) (last) **DOB:** _____ **Gender:** □ Male □ Female □ Prefer not to answer		
Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer	
Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □Two or more races □ Prefer not to answer
Home Address	_____ _ (Street) (City) (State) (Zip)	
Household Structure	☐ Dual 2 Parent Household ☐ Male (Single) Head of Household ☐ Female (Single) Head of Household	☐ Dual 2 Other-Relatives/Kinship Care ☐ Prefer not to answer

	☐ Other-Relative/Kinship Care (Single) Head of Household
Highest level of Education in Household	☐ Some or no high school Degree ☐ Some college ☐ Advanced Degree ☐ High school graduate or GED ☐ Associates Degree ☐ Prefer not to answer ☐ Technical certificate ☐ Bachelor's Degree
Number in Household	# Adults: _____ # Children: _____
Primary Language	□ English □ Spanish □ Haitian-Creole □ Prefer not to answer
Relationship to Child	□ Biological Parent □ Foster Parent □ Adoptive Parent □ Grandparent □ Other:
Marital Status	☐ Married ☐ Separated ☐ Single ☐ Widowed ☐ Divorced
Current Employment	☐ Full-time ☐ Not employed ☐ Part-time ☐ Prefer not to answer
Yearly household income	☐ $0 to 9,999 ☐ $25,000 to 34,999 ☐ $50,000 and above ☐ $10,000 to 24,999 ☐ $35,000 to 49,999 ☐ Prefer not to answer
#1 CHILD INFORMATION SECTION:	

Please fill out the following information based on your child. If you have more than one child please complete the additional info for Child #2 below.

Child Name:

_____

(first) (last)

DOB:_____ **Gender:** □ Male □Female □ Prefer not to answer

Child Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer	
Child Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □Two or more races □ Prefer not to answer
Child's Daily Living	☐ Not yet in school (circle one): – Home (parent/caregiver/relative) – Daycare (friend/relative) – Daycare (center or home-based)	☐ Pre-Kindergarten or Preschool – Free lunch? Yes No ☐ Kindergarten – Free lunch? Yes No

#2 CHILD INFORMATION SECTION:

Please fill out the following information based on your child.

Child Name:

_____

(first) (last)

DOB:_____ **Gender:** □ Male □Female □ Prefer not to answer

Child Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer

Child Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □Two or more races □ Prefer not to answer
Child's Daily Living	☐ Not yet in school (circle one): – Home (parent/caregiver/relative) – Daycare (friend/relative) – Daycare (center or home-based)	☐ Pre-Kindergarten or Preschool – Free lunch? Yes No ☐ Kindergarten – Free lunch? Yes No

*Free to distribute

Appendix B: Young Child PTSD Checklist (YCPC)

YOUNG CHILD PTSD CHECKLIST (YCPC)

1-6 years. Updated 5/23/14.

Name _____ ID _____ Date _____

TRAUMATIC EVENTS

TO COUNT AN EVENT, YOUR CHILD MUST HAVE FELT ONE OF THESE:
(1) FELT LIKE HE/SHE MIGHT DIE, OR
(2) HE/SHE HAD A SERIOUS INJURY OR FELT LIKE HE/SHE MIGHT GET A SERIOUS INJURY, OR
(3) HE/SHE SAW (1) OR (2) HAPPEN TO ANOTHER PERSON, OR SAW SOMEONE DIE.

	Circle 0 if this did not happen to your child.	Circle 1 if this did happen to your child.	Write your child's age when this happened to him/her the first time.	Write your child's age when this happened to him/her the last time.	Write how many times this happened to your child. If it happened lots of times, please make your best guess.
1. Accident or crash with automobile, plane or boat.	0	1			
2. Attacked by an animal.	0	1			
3. Man-made disasters (fires, war, etc.).	0	1			
4. Natural disasters (hurricane, tornado, flood).	0	1			
5. Hospitalization or invasive medical procedures.	0	1			
6. Physical abuse.	0	1			
7. Sexual abuse, sexual assault, or rape.	0	1			
8. Accidental burning.	0	1			
9. Near drowning.	0	1			
10. Witnessed another person being beaten, raped, threatened with serious harm, shot at seriously wounded, or killed.	0	1			
11. Kidnapped.	0	1			
12. Other:	0	1			

13. If more than one event happened to your child: write the number of the event that you think caused the most distress to him/her:	

IF THERE WERE NO TRAUMATIC EVENTS ENDORSED ABOVE, STOP HERE.
OTHERWISE, PLEASE CONTINUE ON NEXT PAGE.....

1

Below is a list of symptoms that children can have after life-threatening events.
When you think of ALL the life-threatening traumatic events from the first page, circle the number below (0-4) that best describes how often the symptom has bothered you in the LAST 2 WEEKS.

0	1	2	3	4
Not at all	Once a week or less/ once in a while	2 to 4 times a week/ half the time	5 or more times a week/ almost always	Everyday

14. Does your child have intrusive memories of the trauma? Does s/he bring it up on his/her own?	0	1	2	3	4
15. Does your child re-enact the trauma in play with dolls or toys? This would be scenes that look just like the trauma. Or does s/he act it out by him/herself or with other kids?	0	1	2	3	4
16. Is your child having more nightmares since the trauma(s) occurred?	0	1	2	3	4
17. Did night terrors start or get worse after the trauma(s)? Night terrors are different from nightmares: in night terrors a child usually screams in their sleep, they don't wake up, and they don't remember it the next day.	0	1	2	3	4
18. Does your child act like the traumatic event is happening to him/her again, even when it isn't? This is where a child is acting like they are back in the traumatic event and aren't in touch with reality. This is a pretty obvious thing when it happens.	0	1	2	3	4
19. Since the trauma(s) has s/he had episodes when s/he seems to freeze? You may have tried to snap him/her out of it but s/he was unresponsive.	0	1	2	3	4
20. Does s/he get upset when exposed to reminders of the event(s)?	0	1	2	3	4

For example, a child who was in a car wreck might be nervous while riding in a car now.
Or, a child who was in a hurricane might be nervous when it is raining.
Or, a child who saw domestic violence might be nervous when other people argue.
Or, a girl who was sexually abused might be nervous when someone touches her.

21. Does your child get physically distressed when exposed to reminders? Like heart racing, shaking hands, sweaty, short of breath, or sick to his/her stomach?"	0	1	2	3	4

Think of the same type of examples as in #20.

22. Does your child show persistent negative emotions (fear, guilt, sadness, shame, confusion) that are <u>not</u> triggered by exposure to reminders of the event as in #20?	0	1	2	3	4

PLEASE CONTINUE ON NEXT PAGE.....

0	1	2	3	4
Not at all	Once a week or less/ once in a while	2 to 4 times a week/ half the time	5 or more times a week/ almost always	Everyday

23. Does your child try to avoid people or conversations that might remind him/her of the trauma(s)? For example, if other people talk about what happened, does s/he walk away or change the topic?	0	1	2	3	4
24. Does your child try to avoid things or places that remind him/her of the trauma(s)? For example, a child who was in a car wreck might try to avoid getting into a car. Or, a child who was in a flood might tell you not to drive over a bridge. Or, a child who saw domestic violence might be nervous to go in the house where it occurred. Or, a girl who was sexually abused might be nervous about going to bed because that's where she was abused before.	0	1	2	3	4
25. Has s/he lost interest in doing things that s/he used to like to do since the trauma(s)?	0	1	2	3	4
26. Since the trauma(s) has your child become more distant and withdrawn from family members, relatives, or friends?	0	1	2	3	4
27. Since the trauma(s), does your child show a restricted range of positive emotions on his/her face compared to before?	0	1	2	3	4
28. Has your child become more irritable, or had outbursts of anger, or developed extreme temper tantrums since the trauma(s)?	0	1	2	3	4
29. Has s/he been more "on the alert" for bad things to happen? For example, does s/he look around for danger?	0	1	2	3	4
30. Does your child startle more easily than before the trauma(s)? For example, if there's a loud noise or someone sneaks up behind him/her, does s/he jump or seem startled?	0	1	2	3	4
31. Has your child had more trouble concentrating since the trauma(s)?	0	1	2	3	4
32. Has s/he had a hard time falling asleep or staying asleep since the trauma(s)?	0	1	2	3	4
33. Has your child become more physically aggressive since the trauma(s)? Like hitting, kicking, biting, or breaking things.	0	1	2	3	4
34. Has s/he become more clingy to you since the trauma(s)?	0	1	2	3	4

PLEASE CONTINUE ON NEXT PAGE…..

0	1	2	3	4
Not at all	Once a week or less/ once in a while	2 to 4 times a week/ half the time	5 or more times a week/ almost always	Everyday

35. Since the trauma(s), has your child lost previously acquired skills? For example, lost toilet training? Or, lost language skills? Or, lost motor skills working snaps, buttons, or zippers?	0	1	2	3	4
36. Since the trauma(s), has your child developed any new fears about things that don't seem related to the trauma(s)? What about going to the bathroom alone? Or, being afraid of the dark?	0	1	2	3	4

FUNCTIONAL IMPAIRMENT

Do the symptoms that you endorsed above get in the way of your child's ability to function in the following areas?

0	1	2	3	4
Hardly ever/ none	Some of the time	About half the days	More than half the days	Everyday

37. Do (symptoms) substantially "get in the way" of how s/he gets along with you, interfere in your relationship, or make you feel upset or annoyed?	0	1	2	3	4
38. Do these (symptoms) "get in the way" of how s/he gets along with brothers or sisters, and make them feel upset or annoyed?	0	1	2	3	4
39. Do these (symptoms) "get in the way" with the teacher or the class more than average?	0	1	2	3	4
40. Do (symptoms) "get in the way" of how s/he gets along with friends at all – at daycare, school, or in your neighborhood?	0	1	2	3	4
41. Do (symptoms) make it harder for you to take him/her out in public than it would be with an average child?" Is it harder to go out with your child to places like the grocery store? Or to a restaurant?	0	1	2	3	4
42. Do you think that these behaviors cause your child to feel upset?	0	1	2	3	4

version 12/9/13

SCORING

The Traumatic Events page (items 1-13) is important to include before administering the symptom portion because it is important to know all of the traumatic events one has experienced that may be linked to symptoms. This page provides a systematic menu to facilitate recall of all events.

Symptoms are scored for totality of events in contrast to many other checklists that rate for only one event.

Items 14-36 are PTSD symptom items. Sum the scores from items 14-36. The suggested cutoff is based on a "probable diagnosis" of PTSD, which is a score of 26 or more for items 14-36. When youth have scores lower than 26 they can still have symptoms and functional impairment that would benefit from treatment.

(Items 37-42 are functional impairment items. These can summed for an impairment score but are not used for the PTSD symptoms score.)

	Items	Probable Diagnosis Cutoff
PTSD Symptoms	14-36	≥ 26
Functional impairment	37-42	≥ 4

Appendix C: Therapy Attitude Inventory (TAI)*

Therapy Attitude Inventory

Adapted from Sheila Eyberg, Ph.D. Copyright ©1974

ID Code _____
Date _____

1. Regarding techniques of disciplining, I feel I have learned:

1. Nothing	2. Very little	3. A few new techniques	4. Several useful techniques	5. Many useful techniques

2. Regarding techniques for teaching my child new skills, I feel I have learned:

1. Nothing	2. Very little	3. A few new techniques	4. Several useful techniques	5. Many useful techniques

3. Regarding the relationship between myself and my child, I feel we get along:

1. Much worse than before	2. Somewhat worse than before	3. The same as before	4. Somewhat better than before	5. Very much better than before

4. Regarding my confidence in my ability to discipline my child, I feel:

1. Much less confident	2. Somewhat less confident	3. The same	4. Somewhat more confident	5. Much more confident

5. The major behavior problems that my child had at home before the program started are at this time:

1. Considerably worse	2. Somewhat worse	3. The same	4. Somewhat improved	5. Greatly improved

6. I feel that my child's compliance with my commands or requests is at this time:

1. Considerably worse	2. Somewhat worse	3. The same	4. Somewhat improved	5. Greatly improved

7. Regarding the progress my child has made in his/her general behavior, I am:

1. Very dissatisfied	2. Somewhat dissatisfied	3. Neutral	4. Somewhat satisfied	5. Very satisfied

8. To what degree has the program helped with other general personal or family problems not directly related to your child:

1. Hindered much more than helped	2. Hindered slightly	3. Neither helped nor hindered	4. Helped somewhat	5. Helped very much

9. I feel the type of program that was used to help me improve the behaviors of my child was:

1. Very poor	2. Poor	3. Adequate	4. Good	5. Very good

10. My general feeling about the program I participated in is:

1. I disliked it very much	2. I disliked it somewhat	3. I feel neutral	4. I liked it somewhat	5. I liked it very much

*Free to distribute

Appendix D: Young Child PTSD Screen (YCPS)

Instrument Title:	Young Child PTSD Screen
Instrument Author:	Michael Scheeringa, MD, MPH
Cite instrument as:	Michael Scheeringa, MD, MPH. (2012) . Young Child PTSD Screen . Measurement Instrument Database for the Social Science. Retrieved from www.midss.ie

YOUNG CHILD PTSD SCREEN (YCPS)

Name _____ ID _____ Date _____

Write down the life-threatening traumatic event(s):

_____

_____

Parent:
Below is a list of symptoms that children can have after life-threatening events. Circle the number (0-1) that best describes how often the symptom has bothered your child in the LAST 2 WEEKS.

	0 No	1 A little	2 A lot
1. Does your child have intrusive memories of the trauma(s)? Does s/he bring it up on his/her own?	0	1	2
2. Is your child having more nightmares since the trauma(s) occurred?	0	1	2
3. Does s/he get upset when exposed to reminders of the event(s)? For example, a child who was in a car crash might be nervous while riding in a car now. Or, a child who was in a hurricane might be nervous when it is raining. Or, a child who saw domestic violence might be nervous when other people argue. Or, a girl who was sexually abused might be nervous when someone touches her.	0	1	2
4. Has s/he had a hard time falling asleep or staying asleep since the trauma(s)?	0	1	2
5. Has your child become more irritable, or had outbursts of anger, or developed extreme temper tantrums since the trauma(s)?	0	1	2
6. Does your child startle more easily than before the trauma(s)? For example, if there's a loud noise or someone sneaks up behind him/her, does s/he jump or seem startled?	0	1	2

SCORING (CUTOFF INDICATING THE NEED FOR CLINICAL ATTENTION)

Two symptoms endorsed (either 1 or 2) is considered a positive screen and should be referred for treatment. A child with one only symptom endorsed is marginally positive and should be referred for further testing at a minimum.

PURPOSE

The YCPS is intended to quickly screen for PTSD in the acute aftermath of traumatic events (2-4 weeks after an event) and/or in settings where there would not be time for longer assessments or more in-depth mental health assessment is not available. The screen is not intended for a general assessment of PTSD or to make a diagnosis.

YCPS BACKGROUND

The structure of six items was based upon the desire to identify youth who have at least five PTSD symptoms. When young children are diagnosed with a developmentally sensitive algorithm (Scheeringa et al., 2003; Scheeringa, Zeanah, and Cohen, 2010), the average number of symptoms ranges from seven to 10, and clinical intervention trials typically require at least five symptoms for inclusion (Cohen et al., 2004; Scheeringa et al., in press).

Of the 17 PTSD symptoms, two of them are rarely if ever endorsed – sense of a foreshortened future and lack of memory for the event. If youth have five of the 15 remaining symptoms, the ratio of endorsed symptoms is one out of three. Thus, the minimal number of symptoms in the screen could be three symptoms but to ensure a margin of confidence it was decided to include six symptoms and require two symptoms to be endorsed for a positive screen.

The items were chosen empirically from data on 284 3-6 year old trauma-exposed children in a National Institute of Mental Health-funded study (R01 MH65884-01A1). Only items that occurred in at least 20% of the subjects were used in the process. Avoidance of external reminders was not used for two reasons: (1) distress at reminders was also being tested and if a person has avoidance of reminders they almost always also have distress at reminders. The only differences are in the chronology (avoidance is anticipatory) and severity (avoidance tends to signal greater severity). Having avoidance would be redundant with distress of reminders. (2) Avoidance of reminders is often a difficult item for caregivers to understand and rate accurately (Cohen and Scheeringa, 2009; Scheeringa, in press). This left eight items to consider, which were combined into 15 possible six-item combinations that included distress at reminders as one of the items. Next, the number of children who had at least five PTSD symptoms was calculated (n=165). Then the performance measures of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated for all 15 six-item combinations with at least 5 symptoms as the gold standard (Table 1). Table 1 shows that when any combination of two out of six items counted as a "hit", all of the combinations showed good sensitivity and NPV. However, of the four combinations that showed 100% sensitivity, only one was balanced with three items from criterion B (re-experiencing cluster) and three items from criterion D (increased arousal cluster) (b4b1b2d1d2d5). This would be the favored combination unless another combination had nearly equal sensitivity but superior specificity and PPV. The combination with the highest specificity was the b4b1b2d4d5d3 combination. But it was considered that hypervigilance (d4) would not be well-understood as a checklist item. Furthermore, sensitivity is usually considered relatively more important than specificity for screens because one is trying to identify those who need treatment (as opposed to avoid giving a treatment that can do harm to someone who doesn't need it). Therefore, the b4b1b2d1d2d5 was considered the best choice because of the highest sensitivity, the best balance among re-experiencing and increased arousal symptoms, and the easiest to understand items for a checklist measure.

The YCPS has not been used in a study yet. These wordings are derived from years of experience of conducting interviews and designing diagnostic interviews for PTSD with caregivers of young children in multiple research studies.

SCORING EXPLANATION

Each item is scored on a 3-point Likert scale. However, the Likert scale was created only for administration purposes to give respondents a range of scores. For scoring, either "yes" answer (any 1 or 2) counts as a "yes". Two "yes" answers is a positive screen. It was considered that if respondents were given only dichotomous choices to score they may not endorse mild to moderate symptoms. The total sum of scores is irrelevant.

Table 1. Performance measures (n=284).

6-item sets	Sensitivity	Specificity	PPV	NPV
b4b1b2d1d2d3	98.8%	42.0%	70.3%	96.2%
b4b1b2d1d2d4	98.2%	41.2%	69.8%	94.2%
b4b1b2d1d4d3	97.0%	51.3%	73.4%	92.4%
b4b1b2d4d2d3	98.8%	46.2%	71.8%	96.5%
b4b1d4d1d2d3	98.8%	40.3%	69.7%	96.0%
b4d4b2d1d2d3	98.8%	45.4%	71.5%	96.4%
b4b1b2d1d2d5*	100%	42.9%	70.8%	100%
b4b1b2d1d5d3	98.2%	52.1%	74.0%	95.4%
b4b1b2d5d2d3	99.4%	47.9%	72.6%	98.3%
b4b1d5d1d2d3	100%	41.2%	70.2%	100%
b4d5b2d1d2d3	100%	45.4%	71.7%	100%
b4b1b2d1d4d5	98.2%	54.6%	75.0%	95.6%
b4b1b2d4d5d3	96.4%	63.9%	78.7%	92.7%
b4b1d4d5d2d3	99.4%	51.3%	73.9%	98.4%
b4d4d5d1d2d3	100%	43.7%	71.1%	100%

Sensitivity=TP/TP+FN

Specificity=TN/TN+FP

PPV=Positive Predictive Value =TP/TP+FP

NPV=Negative Predictive Value =TN/TN+FN

TP=true positive; FP=false positive; TN=true negative; FN=false negative.

*YCPS items

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