

A TRAUMA-INFORMED MODEL OF CARE IN TEXAS JUVENILE JUSTICE
FACILITIES: EVALUATION AND IMPLICATIONS

by

ELIZABETH DIANNE JOSEPH

Bachelor of Science, 2019
Louisiana State University
Baton Rouge, LA

Master of Science, 2021
Texas Christian University
Fort Worth, Texas

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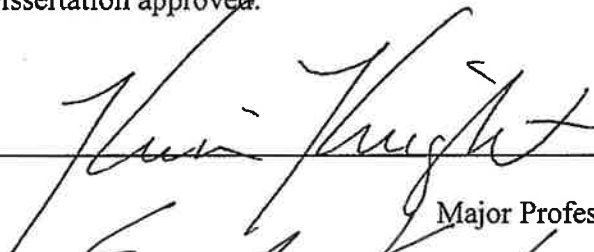
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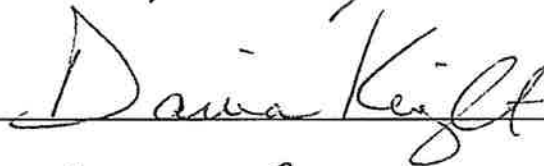
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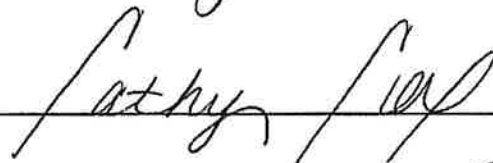


Major Professor











For the College of Science and Engineering

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A TRAUMA-INFORMED MODEL OF CARE IN TEXAS JUVENILE JUSTICE FACILITIES: EVALUATION AND IMPLICATIONS

A person's unique trauma history can influence their psychosocial well-being and behavior. In light of this, the juvenile justice (JJ) system is encouraging the development of trauma-informed JJ facilities. The current study begins with an overview of trauma and its effects. Next, the prevalence of trauma, specifically adverse childhood experiences (ACEs), within the JJ system is discussed, followed by a description of trauma-informed care and its application to the JJ field. The current study then investigates the impact of a facility-wide model of trauma-informed care in five secure JJ facilities on adolescents' in-facility behavior.

Introduction

In 2020, over 300 million youth across the United States were reportedly involved with the JJ system (National Center for Health Statistics, 2021). In recent years, JJ researchers and policymakers have recognized that the overwhelming majority of adolescents with JJ involvement have experienced trauma. Specifically, JJ-involved youth are approximately three to eight times more likely to experience trauma than non-JJ-involved peers (Abram et al., 2004). This is particularly troubling, as evidence has emerged that each occurrence of trauma has repercussions for adolescents' future offenses. Fox and colleagues (2015) explored the predictive ability of trauma on the occurrence of serious, violent, and chronic (SVC) offending. Utilizing a sample of over 20,000 delinquent youth referred to a state JJ department, these researchers found that traumatic experiences predicted SVC offending while controlling for other criminal offending risk factors (e.g., sex, age, anti-social peers, impulsivity, and familial income). More specifically, with each additional traumatic experience, the risk of being a SVC offender increased by over 35%. While many adolescents have already been subjected to traumatic

experiences prior to their involvement with the JJ system, exposure to the justice system itself can be traumatizing, especially for youth in residential facilities (Burrell, 2013). Youth in residential facilities undergo separation from their home environment, community, and social supports (e.g., family, friends). Inside of secure, residential JJ facilities, the stress of the environment can introduce or exacerbate mental health issues. For example, some enforcement methods utilized in JJ facilities (e.g., solitary confinement, physical restraint) are associated with increased depression and anxiety (Clark, 2017).

Despite the prevalence of adolescents who have experienced trauma within the JJ system, historical and bureaucratic barriers have impeded efforts to integrate trauma-informed practices and interventions into the JJ system (Goshe, 2019). However, across the United States, JJ systems and stakeholders are being encouraged to develop trauma-informed systems and facilities to mitigate the symptoms of trauma present in JJ-involved youths and to lessen the potential for further traumatization within JJ facilities. While the interest and demand for trauma-informed care in JJ facilities has grown, little research has documented how these practices affect youth in the short-term while they reside in the facility, or in the long-term after they transition back into their respective communities. To address this, the present study seeks to compare the in-facility behavioral noncompliance of youth prior to and following the implementation of a trauma-informed care model within JJ facilities and provide recommendations for the implementation of trauma-informed care in JJ settings.

Trauma and its Effects

The concept of trauma is unique in that the experience itself is defined by its consequences, wherein an event is considered “traumatic” due to its effects on the biopsychosocial functioning of the person who experienced it (May & Wisco, 2016). Clinically,

trauma is diagnosed by its effects and referred to as post-traumatic stress disorder (PTSD). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) states that to diagnose an individual with PTSD, that person must: 1) face exposure to actual or threatened death, serious injury, or sexual violence through direct experience, witnessing the event, its occurrence to a close family member or friend, or experiencing repeated exposure, 2) one or more intrusive symptoms following the traumatic experience, 3) avoidance of stimuli indicative of the experience, and symptoms following the traumatic experience, 4) negative changes in psychosocial functioning after the event or experience, and 5) differences in arousal and reactivity following the event (Center for Substance Abuse Treatment, 2014). The symptoms described following the exposure must persist for over a month and cause significant disturbances in functioning for a diagnosis for PTSD.

As described by the DSM-5 criteria for PTSD, the symptoms of trauma can present differently based on the context and frequency of the traumatic experience, or whether the trauma is considered acute or complex (Wamser-Nanney & Vandenberg, 2013). Acute trauma refers to an adverse experience that occurs once or infrequently, whereas complex trauma refers to sustained, interpersonal trauma. Complex trauma impacts various aspects of an individual's life, particularly when it occurs early in life. This is illustrated by the literature review conducted by Cook and colleagues (2005) to identify areas of impairment in children and adolescent stemming from complex developmental trauma. Their findings revealed seven areas of impairment: attachment, biology, affect regulation, dissociation, behavioral control, cognition, and self-concept. These areas of impairment span the domains of biopsychosocial functioning, affecting each area of a child's life. Furthermore, due to its sustained and interpersonal nature, complex developmental trauma can have a deleterious effect on not only a child's and

adolescent's functioning, but also their ongoing development into adulthood (Spinazzola et al., 2005).

Adverse Childhood Experiences (ACEs)

As trauma affects a multitude of life outcomes for youth, both researchers and clinicians have a vested interest in measuring and assessing its far-reaching effects. To measure and quantify early trauma, researchers commonly use the construct of adverse childhood events (ACEs; Felitti, 1998). Adverse childhood events refer to traumatic events that occurred during childhood or adolescence, or before the age of 18. The name and concept of ACEs are derived from the influential study conducted by Felitti and colleagues (1998), wherein researchers administered a survey to 13,494 adult participants. The survey contained questions surrounding participants' personal experiences of a variety of traumatic events before turning 18, deemed the Adverse Childhood Experiences Questionnaire (ACE-Q). The ACE-Q was accompanied by an extensive set of questions on participants' health and life experiences after the age of 18. Responses from 8,056 participants demonstrated that exposure to ACEs in childhood is linked to increased health risk behaviors (e.g., use of illicit drugs, ≥ 50 sexual intercourse partners, history of a sexual transmitted disease) in adulthood, mortality, and decreased physical health. Specifically, the results indicated a strong graded relationship between the number of ACE exposure categories and adult risk behaviors and diseases, with each additional ACE increasing the risk of detrimental outcomes. Furthermore, additional research has found that exposure to ACEs is linked to impaired emotional well-being and social functioning in both childhood and adulthood.

For example, in a study conducted by Pierce et al. (2022), the researchers sought to explore the associations between ACEs occurring before the age of 5 and social skills in youth.

The sample studied included 3,245 participants, utilizing data from both caregivers and children. The researchers employed ordinary least squares regression to determine if early ACEs are associated with deficits in social functioning. Their findings indicated that ACEs and deficits in social skills were positively associated, wherein as ACEs increased, so too did social skills impairment. Moreover, the frequency of exposure to early ACEs further decreased social skills. In adolescence, a similar pattern of influence has been found. A systematic review of research on ACEs, family functioning, and mental health amongst adolescents found a significant association between ACEs and mental health (Scully et al., 2020). Specifically, the literature review found that ACEs were related to poorer mental health in childhood and adolescence, including social anxiety, internalizing problems, deliberate self-harm, depression, and suicide attempts. Overall, each additional ACE was related to worse mental health outcomes in adolescence. Unfortunately, the aforementioned relationship between ACEs and psychosocial functioning persists well into adulthood. Merrick and colleagues (2017) utilized multiple logistic regressions to explore the association between ACEs and outcomes in adulthood whilst controlling for sociodemographic characteristics (e.g., race, education, marital status). Their findings indicated a graded-dose response relationship between ACEs and several behavioral and mental health outcomes. Specifically, as ACEs increased, so did the likelihood of moderate to heavy drinking, substance use, depression, and suicide attempts.

These behavioral outcomes may be due in part to the relationship between ACEs and behavioral control. Furthermore, ACEs have been found to impair behavioral control, with higher ACEs predicting greater impairment in both children and adults (Shin et al., 2018). This is illustrated by research conducted by Chapple and colleagues (2021) using data from 3,444 youth who took part in the Fragile Families and Child Wellbeing Study. Their findings indicated that as

ACEs increased, self-control in male and female children decreased. This association between ACEs and behavioral control may help to explain the observed relationship between ACEs and aggression (Mumford et al., 2019). Research indicates that as the number of ACEs increases, the instances of physical aggression also increase in youth and young adults. For example, in a sample of over 2,000 men and women recruited from Amazon's Mechanical Turk, researchers found that ACEs were associated with self-reported acts of aggression throughout participants' lives (King, 2021). However, the association between ACEs and aggressive behavior has been less frequently explored amongst children and adolescents. Of particular interest is a study conducted using data from 136,549 students who participated in the Minnesota Student Survey (Duke et al., 2010). Utilizing linear and logistic regression, the researchers found that each type of ACE was associated with both violent interpersonal behavior (e.g., bullying, physical fighting, dating violence, and weapon-carrying) and self-directed violence (e.g., self-harm, suicidal ideation, and suicide attempts) during adolescence. Furthermore, a dose-response relationship was observed between types of ACEs and violent behavior, wherein the risk of violent behavior increased with each additional type of ACE reported. However, McRae and colleagues (McRae et al., 2021) found conflicting results. The researchers measured ACEs, PTSD symptoms, and reactive (e.g., responding to a situation with aggression) and proactive (e.g., instigating aggressive behavior) aggression within a sample of 86 male children aged 6 to 14 years old. The results from the study indicated that overall ACEs were not associated with either type of aggression; however, the specific ACE of child maltreatment was positively associated with both reactive and proactive aggression. Therefore, further research is warranted on the association between ACEs and aggression within children and adolescents. Taken together, the literature on ACEs in the general population indicate that ACEs are associated with a myriad of negative life

outcomes, spanning mental health, psychosocial functioning, and problematic behaviors, making ACEs of interest to researchers, clinicians, and policy makers.

ACEs and JJ-involved Youth

The results from Felitti et al.'s study (1998) inspired numerous experiments documenting the impact of ACEs within various populations, such as across economic sectors (Halfon et al., 2017), countries (Alhowaymel et al., 2021), race/ethnicity (Mersky et al., 2021), and within the adult justice and JJ systems (N. Wolff & Caravaca Sánchez, 2019). The prevalence of ACEs amongst justice-involved individuals is of particular note. Adverse childhood experience studies conducted among youth in the JJ system have revealed that youth with JJ system involvement are four times more likely than non-JJ involved peers to experience four or more ACEs; additionally, they are 13 times less likely than non-JJ involved youth to report no ACEs (Baglivio et al., 2014). Furthermore, JJ-involved adolescents who have a higher number of ACEs are more likely to reoffend than JJ-involved adolescents with lower ACEs. In a study of 27,867 unique youth in the Florida JJ system, researchers examined 12 months of recidivism (i.e., subsequent delinquency referrals) data and their relation to ACEs. Utilizing Cox hazard modeling, the researchers found that a higher number of ACEs predicted both recidivism occurrence and a significantly shorter time to recidivism across all genders, races, and ethnicities (Wolff et al., 2017).

The detrimental effect of ACEs on youth within the JJ system are further exemplified in a study conducted by Baglivio and colleagues (2015). In the study, ACEs data were collected from 64,329 youth referred to the JJ system in Florida. With the youths' arrest records and ACE scores, the researchers developed aggregate offending curves and trajectories for the full sample. A five-group model of offending trajectories emerged from their analyses, with groups

designated as mid-to-early offending onset that later desists, late offending, mid-to-late offending that desists, early offending, and mid-to-early offending. Further analyses revealed that youth with greater ACE scores were more likely to begin offending at an earlier age and continue offending through late adolescence. Additionally, across groups higher ACEs scores predicted chronic offending while controlling for criminogenic risk factors, or factors related to recidivism (e.g., impulsivity, antisocial peer association, aggression, substance use). This connection between ACEs and criminal offenses also extends into adulthood, with a greater number of ACEs predicting more criminal justice contact in young and middle adulthood (Testa et al., 2022).

The association between ACEs and criminal offending throughout childhood and adulthood is evident. This, coupled with the prevalence of ACEs experienced by youth in the JJ system, underscores the need for targeted intervention, as each additional ACE places youth at a higher risk for subsequent recidivism and further negative life experiences (Yohros, 2022).

Trauma-Informed Care

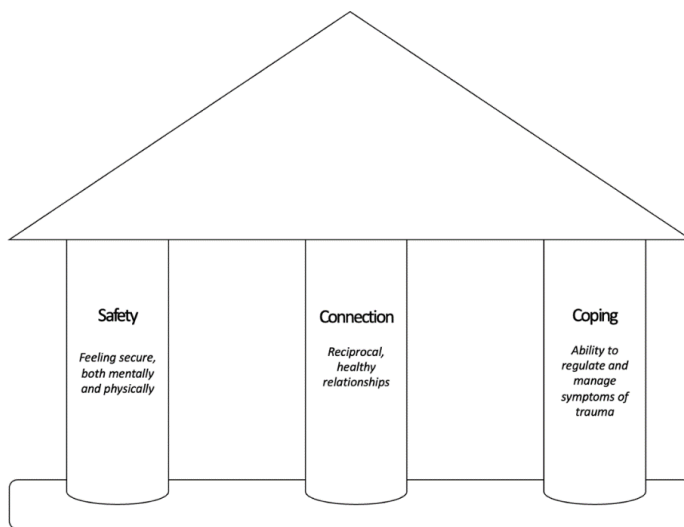
As previously described, exposure to traumatic events early in life can have long-lasting physiological, behavioral, and psychological consequences. Therefore, understanding the intricacies of trauma and its effects on children and adolescents is critical to its treatment. However, certain symptoms of trauma, such as dissociation, difficulties in cognition, and behavior dysregulation, can complicate its treatment, particularly for youth (Lawson & Quinn, 2013). For example, youth who experienced complex trauma often struggle with treatment due to strong feelings of anger stemming from their trauma, disturbing memories of traumatic experiences, and feeling “permanently damaged” by trauma (Van der Kolk, 2002). In light of these concerns, researchers and clinicians have advocated for the usage of trauma-informed care.

The Substance Abuse and Mental Health Services Administration (SAMHSA) defines trauma-informed care as understanding the impact of trauma, recognizing the symptoms of trauma, responding by fully integrating knowledge about trauma into policies, procedures, and practices, and mitigating any potential for re-traumatization. The broad definition of trauma-informed care lends itself to application in a variety of fields, such as medicine (Raja et al., 2015), addiction (Rosenberg, 2011), education (Thomas et al., 2019), social work (Levenson, 2017), and the justice system (Ko et al., 2008). Within these domains, trauma-informed approaches have been shown to improve patient outcomes, increase planned discharges, and reduce symptoms of trauma (Hales et al., 2019).

To meet the specific needs of youth who experienced complex trauma, Bath (2015) developed a framework of trauma-informed care entitled “The Three Pillars of TraumaWise Care” (Figure 1).

Figure 1.

The Three Pillars of TraumaWise Care



Note. This figure depicts Bath’s Three Pillars of TraumaWise Care: safety, connection, and coping (2015).

The Three Pillars framework leverages parents, caregivers, teachers, and other adult figures as agents of cognitive and behavioral change in youths. The framework posits that due to the interpersonal nature of complex trauma, the symptoms of trauma are best treated through relationships in non-clinical settings, thereby “healing in the other 23 hours.” This is accomplished by fostering the three pillars of *safety*, *connection*, and *coping*. Safety refers to an environment where one feels secure and is not concerned about having their basic human needs met (e.g., housing, food insecurities, etc.). The idea of “feeling safe” is critical, as people who have experienced trauma may feel as though they are still in danger even when there is no immediate threat present due to heightened arousal (Crouch et al., 2019). When one does not feel safe within their environment, activation of the sympathetic nervous system can occur, engaging a “flight or fight response” in an individual (Baldwin, 2013). This response has the potential to worsen behavior and escalate problematic situations, introducing a cascade of negative behavior and outcomes. Therefore, it is not enough to tell youth they are safe: they must feel it. From Bath’s perspective, safety is achieved through relationships with others. However, in order to derive safety from others, the youth must establish a healthy relationship with them, thus highlighting the importance of the next pillar, connection.

The pillar of connection refers to reciprocal, healthy relationships someone has with their caregivers and peers. The interpersonal nature of complex trauma can make it difficult for youth to trust others (Van der Kolk & Courtois, 2005). Despite this, Bath (2015) maintains that connection can be established through healthy, consistent interactions with caregivers and other adults. This echoes the theory of attachment proposed by Bowlby (1979). Bowlby theorized that individuals’ early interactions with their caregivers form how they view and engage in relationships throughout their lives. Caregivers who respond to young children’s needs in

predictable, appropriate manners effectively teach them that they are safe within their presence and that they can be trusted with their emotional and physical well-being. However, youth who have experienced complex trauma have likely not experienced this consistent caregiving; rather, they may have been exposed to abuse and neglect at the hands of caregivers or other adults. Instead of deriving security from relationships, at a young age these children were taught that they cannot trust others to feel safe and meet their needs. Therefore, when treating the symptoms of trauma, caregivers must intentionally strive to develop a connection with juveniles by engaging in responsive caregiving, which establishes trust.

The final pillar, coping, refers to one's ability to regulate and manage symptoms of trauma in everyday life. As discussed previously, children and adolescents with histories of trauma may develop maladaptive coping strategies to address the traumatic situations and their subsequent effects, such as substance use and dissociation. In order to reduce or eliminate these negative strategies in juveniles, caregivers must assist them in developing healthy coping mechanisms. For example, caregivers and other adults can help children improve their ability to regulate and cope with both their everyday stressors and trauma symptoms by promoting verbal skills and co-regulation. The concept of co-regulation refers to responsive assistance in physiological, emotional, and behavioral regulation (Buhler-Wassmann & Hibel, 2021; Lobo & Lunkenheimer, 2020). In practice, caregivers can co-regulate with adolescents by engaging in regulating activities together, such as performing breathing exercises, physical movement, or mindfulness activities.

Similar to the broader approach of trauma-informed care, Bath's Three Pillars of TraumaWise Care can be extended to any setting where adults interact with youth. The Three Pillars, however, extend the general guidelines of trauma-informed care into actionable practices

that could be conducted without specific training or procedures. This is critical, as it allows any caregiver or adult to meaningfully address a child or adolescents' trauma in everyday interactions without extensive training, which can be prohibitive due to financial, time, or educational constraints. Despite the benefits to Bath's approach, to the author's knowledge no research has been conducted on whether or not trauma-informed models of care directly influence each of these pillars, and if changes in these areas constitute improvements in problematic behaviors or thought patterns stemming from traumatic experiences. Additionally, it is unknown if the pillars carry equal importance, or if the development of the pillars are dependent upon one another.

Trauma-informed Care in JJ Settings

One of the systems to benefit from the implementation of trauma-informed care is the JJ system. This, in part, is due to the prevalence of youth who have experienced trauma within the JJ system. It is estimated that roughly 25% to 30% of incarcerated youth meet the clinical criteria for PTSD (Dierkhising et al., 2013). Despite the need for trauma-informed care within the JJ system, little research exists on facility-wide implementation and outcomes. The majority of research on trauma-informed care within the JJ system relates to the efficacy of specific interventions as opposed to facility-wide practices. For example, in a study conducted by Baetz and colleagues (2021), researchers implemented a trauma-informed intervention for staff (i.e., "Think Trauma: A Training for Staff in Juvenile Justice Residential Settings") and trauma-informed skills groups for youth (i.e., "Brief Skills Training in Affective and Interpersonal Regulation–Adolescent") at two secure, juvenile detention facilities. The study analyzed the rates of in-facility violence among 14,856 youth across two facilities, and found that in one of the two facilities, the intervention was significantly associated with a reduction in violent incidents

within the facility. However, there was no effect on the number of violent incidents in the second facility. The researchers suggest that this may be due in part to the larger number of youths exposed to the intervention in the first facility as compared to the second facility. Additional studies have indicated that trauma-informed interventions have resulted in short-term improvements in depression and PTSD symptoms, but to date no studies have been conducted on the impact of facility-wide trauma-informed models of care (Zettler, 2021).

Further support for the usage of trauma-informed care within JJ settings can be derived from the Risk-Need-Responsivity (RNR) model, which is commonly used to recommend treatment for individuals within JJ and adult criminal justice systems (Bonta & Andrews, 2007). The RNR model maintains that in order to reduce the occurrence of recidivism, treatment within the justice system should be individualized to a person's risk level, unique needs, and be delivered in a manner attuned to an individual's motivation, learning capabilities, and strengths. While this model was developed with adults, it has been extended to adolescents within the JJ system (Basanta et al., 2018; Brogan et al., 2015). Trauma, as described above, has the potential to affect each principle of the RNR model: trauma increases the risk for reoffending (Baglivio et al., 2015), causes symptoms of PTSD (Spinazzola et al., 2005), and negatively affects both motivation for learning and learning capability (Burke et al., 2011; Crouch, Radcliff, Hung, et al., 2019). Thus, in accordance with the RNR model, the treatment of JJ-involved youth with trauma histories must consider the impact of trauma on their lives in order to be effective. As described within Bath's Pillars of TraumaWise Care (2015), healthy relationships are critical to mitigating the symptoms of trauma. This focus on relationships in addressing the symptoms of trauma mirrors the concept of social capital. The concept of social capital refers to an individuals' relational resources, such as family, friends, and communities, that can be depended

upon during periods of hardship (Best & Laudet, 2010). The concept also encompasses the obligations one might have to groups where they hold membership, such as being a member of a family. Research on social capital has shown that individuals with greater social capital are more likely to recover from substance use disorders and that juveniles with greater social capital are less likely to recidivate (Efta-Breitbach & Freeman, 2004; Hennessy, 2017; Ryan & Yang, 2005). Therefore, it stands to reason that trauma-informed care may benefit adolescents due to its focus on improving connection and establishing healthy relationships, which would contribute to their social capital.

In recent years, the United States Juvenile Justice Department has moved from a punishment-centered model to a rehabilitative model of care and called for the development of trauma-informed JJ courts and facilities (Mills, 1995; Monahan et al., 2015). In 2019, the Texas Juvenile Justice Department (TJJD) developed and implemented its own model of trauma-informed care, deemed the “Texas Model for Intervention,” within its facilities (Texas Juvenile Justice Department, 2020). As part of the Texas Model for Intervention, TJJD staff received in-depth education on childhood trauma, its effects, and how it may drive youth behavior. Additionally, they received training on how to respond to youth behavior in a trauma-informed manner rather than with immediate force. The framework for the Texas Model for Intervention is derived from the Trust-based Relational Intervention® (TBRI®), an attachment-based, trauma-informed intervention designed for parents and caregivers to use with children who may have experienced trauma (Purvis et al., 2013). The intervention has three core principles that map onto Bath’s Three Pillars of TraumaWise Care (2015): *empowering, connecting, and correcting*. Empowering refers to guaranteeing one’s physical needs are met, with the empowering strategies dichotomized into physiological and ecological strategies, which maps onto Bath’s pillar of

safety. The connecting principle refers to meeting children’s attachment needs by encouraging safety through mindfulness and engagement strategies, which mirrors Bath’s Pillar of connection. The final principle, correcting, can be divided into the subcategories of proactive strategies and responsive strategies and is closely intertwined with Bath’s coping pillar.

The intervention has been utilized in a variety of contexts, ranging from adoptive homes to child welfare, schools, and residential facilities (Crawley et al., 2021; Parris et al., 2015; Reid et al., 2018). In a randomized control trial where parents and caregivers received TBRI® training, children in the treatment group demonstrated significant decreases in both problem behavior and trauma symptoms (Purvis et al., 2015). An additional study found that children who attended a TBRI® day camp exhibited decreased thought problems, attention issues, aggression, and salivary cortisol levels, along with improved attachment behaviors (Purvis et al., 2007). The intervention is also in the process of being formally adapted and tested for use with adolescents in the JJ system and their caregivers (Knight et al., 2021). While the majority of interventions that address trauma are typically intended for use with the person who has experienced trauma, TBRI® is unique in that it is intended for use with the whole family and utilizes the caregiver as the agent of change in day-to-day interactions, as opposed to a clinician who meets with the client during specified intervals.

The preliminary research on TJJJ’s Texas Model for Intervention is promising, with results indicating a decrease in use of force by staff, as well as increased reported staff safety (Texas Juvenile Justice Department, 2020). However, further research is needed on how the Texas Model affects youth within facilities. Therefore, the present study seeks to address this by examining the effect of the Texas Model on adolescents’ behavioral noncompliance compared to those who received standard care within TJJJ facilities. Additionally, this project aims to

determine if the Texas Model has differential effects based on the level of trauma youth have experienced and if youths' feelings of safety, connection, and coping are the mechanism of change through which the Texas Model operates.

Current Study

Aim 1 of the current study was to determine if youths' ACEs are associated with behavioral noncompliance, as evidenced by the number in-facility assaults committed by youth. Based on previous research (Baglivio et al., 2015), it was hypothesized that youths' self-reported ACEs would be positively associated with behavioral noncompliance (**H1**).

Aim 2 of the study was to examine the relationship between youths' exposure to the Texas Model of Intervention (i.e., whether or not the Texas Model of Intervention was in place during youths' time in the facilities) and youths' behavioral noncompliance. As indicated in previous research, short-term, trauma-informed interventions have been shown to reduce behavioral issues amongst juveniles (Zettler, 2021). However, little research has been conducted on the effects of a facility-wide model of trauma-informed care in a JJ setting; rather, the majority of research on trauma-informed care in JJ settings has examined specific trauma interventions. In the current study, it was expected that exposure to the Texas Model of Intervention would be negatively associated with behavioral noncompliance, with youth in TJJD facilities who did not experience the Texas Model of Intervention showing greater behavioral noncompliance than youth who experienced the Texas Model of Intervention (**H2**).

Aim 3 of the study sought to provide more information on if experiencing the Texas Model influences the relationship between adolescents' trauma histories (i.e., ACEs) and behavioral noncompliance. According to the RNR model's responsivity principle, for intervention and treatment to be effective it must address a person's risk, unique needs, and be

delivered in a manner attuned to the individual (Bonta & Andrews, 2007). However, it is unknown if youth who report experiencing little-to-no trauma benefit from trauma-informed care. Prior research has suggested that placing low-risk individuals in high-intensity treatment can increase the risk of later offending (Bonta et al., 2000). While trauma-informed care does not constitute high-intensity treatment, it is possible that benefits may not be seen for youth with minimal traumatic experiences. However, trauma-informed care could provide youth with skills that are generalizable regardless of experienced trauma. Previous studies on trauma-informed interventions in JJ settings have found that trauma-informed interventions resulted in reductions in in-facility violence and improved psychosocial functioning (Zettler, 2021). These effects could be beneficial to all youth, regardless of their unique trauma histories. Therefore, Aim 3 of the study was to test youths' experience of the Texas Model as a potential moderator of the relationship between ACEs and behavioral noncompliance. It was hypothesized that both ACEs and youths' exposure to the Texas Model would significantly predict behavioral non-compliance, but that youth at all levels of ACEs will show decreased behavioral non-compliance as compared to youth who did not experience the Texas Model (**H3**).

According to Bath's Three Pillars of TraumaWise Care (2015), improving youths' feelings of safety and connection, and improving their coping skills can mitigate the symptoms of trauma, including behavioral issues. However, to the author's knowledge, no study has assessed if these pillars function as the driving factors behind models of trauma-informed care. Therefore, the fourth and final aim of this research was to determine if Bath's Three Pillars of TraumaWise Care (i.e., safety, connection, and coping) are the mechanism of change behind the observed relationship between experience of the Texas Model and behavioral noncompliance. To accomplish this, a first stage moderated mediation was conducted. In this analysis, youths' self-

reported feelings of perceived dangerousness (i.e., unsafety), connection, and coping difficulties were tested as mediators of the relationship between experience of ACEs and behavioral noncompliance, with the Texas Model moderating the relationships between ACEs and the proposed mediators. It was expected that a greater number of ACEs would predict feelings of greater unsafety, less connection, and more difficulties coping. Additionally, it was hypothesized that youth who experienced the Texas Model would report less unsafety, greater connection, and less coping difficulties, which in turn would predict less behavioral noncompliance (**H4**).

A final exploratory analysis was then used to further examine the relationship between ACEs and the Pillars of TraumaWise Care with behavioral noncompliance through serial mediation to determine if the pillars were linked in a specified direction. This analysis extended the fourth aim of the study by determining if the youths' feelings of unsafety, connection, and coping difficulties contribute to one another. To date, no research has examined whether or not the Pillars of TraumaWise Care are dependent of one another, or if one pillar is necessary for the development of the subsequent pillars. Understanding how the pillars of TraumaWise Care influence one another and affect adolescents' behavior within the facility could improve facility practices and adolescents' in-facility behavior, which could then benefit their rehabilitative gains accrued whilst in a JJ facility.

To better understand the environment JJ youth experience and the nuances of implementing trauma-informed care within a secure JJ facility, qualitative interviews were conducted with clinicians who regularly utilize trauma-informed care in their work in JJ settings. The clinicians described practicing trauma-informed care, provided feedback on the results from the current study, and assessed how well the results aligned with their experiences implementing trauma-informed care within a JJ setting.

Quantitative Method

Participants

The current study includes 2,992 male and female youth participants between the ages of 13 and 22 from five secure, residential TJJD facilities. The term “secure, residential facility” refers to a public or private, post-adjudication, residential facility with mechanisms in place to physically restrain the movements and activities of juveniles held in lawful custody at the facility. Data were collected between July 1, 2019, and July 20, 2021, over four waves of data collection: Wave 1 (July 1, 2019- July 12, 2019; $n = 838$), Wave 2 (January 6, 2020-January 21, 2020; $n = 827$), Wave 3 (January 13, 2021- January 29, 2021; $n = 614$), and Wave 4 (July 1, 2021- July 20, 2021; $n = 713$). It is important to note that Wave 3 was initially planned for July of 2020, but was postponed to January 2021 due to the coronavirus disease 2019 (COVID-19) pandemic. After Wave 1, the Texas Model of Intervention was implemented in each of the five TJJD facilities. To allow time for the model to be implemented, Wave 2 of data collection did not begin until 6 months after Wave 1. All youth committed to and present in TJJD’s secure facilities during the data collection waves were given the opportunity to participate in the study. However, the survey was only available in English, making fluency in the English language necessary for participation in the study. Both the use of this data and the current study in its entirety have been approved by the Texas Christian University Institutional Review Board.

Procedure

As the youth were legally under the care and custody of the state while residing in the TJJD facilities (i.e., in loco parentis), the state consented to the youth being surveyed. During their educational period, all youth residing in the facility during the data collection waves were presented with the opportunity to participate in a study and given an information sheet describing

the research. The facilities provided participating youth with a special snack (e.g., candy bar, potato chips) in lieu of a typical snack (e.g., fruit, granola bar). If youth assented to participate, the survey was administered online during their education time in the school computer lab. Across the four waves, the average percent of youth that agreed to complete the survey was 74.3%. The survey itself had 89 items and contained both Likert scale and open-end questions at a fourth-grade reading level.

Measures

Sociodemographic Information

Sociodemographic information was derived from TJJD records data, obtained directly from TJJD through a Public Information Request. The information collected as part of TJJD's records was gathered during in-take procedures at each facility. The records included both demographic information (e.g., age and sex) and assessment results (e.g., ACE questionnaire score). Prior to its receipt, the data were de-identified and participants were assigned unique codes to link their records to their respective survey responses. Information to be analyzed include age, sex, intake date, and facility assignment.

Experience of Trauma-informed Care

Youth's experience of trauma-informed care within TJJD facilities was determined by which data collection wave they participated in. Wave 1 occurred prior to the implementation of the Texas Model of Intervention; therefore Wave 1 participants ($n = 838$) did not experience the Texas Model. The remaining participants ($n = 2,154$) experienced the Texas Model as TJJD's standard of care during their time in TJJD facilities. Prior to the implementation of the Texas Model, juveniles residing in TJJD facilities received basic state services, including education, mental health services, and recreational time. While these basic state services did not change

following the implementation of the Texas Model, staff received training on trauma-informed care and how to respond to youth in a trauma-informed manner using the TBRI principles of connecting, correcting, and empowering (Texas Juvenile Justice Department, 2020).

Behavioral Noncompliance

Behavioral noncompliance was operationalized as the number of assaults youth committed against both peers and JJ staff while residing in the TJJD facilities, with a greater number of assaults indicating greater behavioral noncompliance. As part of standard practice at each facility, TJJD staff document each assault occurrence in the youths' records data. Assaults were specifically chosen to represent behavioral noncompliance, as these actions are considered the most serious rule violation that can be committed while in a residential JJ facility. According to the Texas Juvenile Justice Department General Administrative Policy Manual, assaults are defined as intentional, unauthorized physical contact with another youth or staff that may or may not result in bodily injury. For the purposes of the current study, youths' assaults on both their peers and assaults on TJJD staff were summed to form an aggregate assault variable.

Trauma

Youth's experiences of trauma was operationalized as their scores on the Adverse Childhood Experiences Questionnaire (ACE-Q; Felitti et al., 1998). As part of standard intake at TJJD, youth completed the ACE-Q, thus youths' scores on the measure were extracted from their TJJD records. The ACE-Q is a 10-item measure designed to assess the level of early trauma an individual has experienced. Response options are dichotomous, with response options of "yes" or "no" to indicate whether or not an experience has happened. Affirmative responses are scored as 1, while responses of "no" are scored as 0 for each question. Responses are then summed, with total scores ranging from 0 to 10. While a score of 4 is typically the criteria for severe ACEs in

the general population (Hughes et al., 2017), the sum of ACEs was utilized in the current study due to the high prevalence of ACEs typically reported within JJ-involved populations (Baglivio et al., 2014).

Unsafety

Safety was conceptualized as juveniles' feelings of perceived dangerousness, or unsafety. To assess this, 6 items were adapted from the Panorama Student Survey's School Safety scale (Panorama Education, 2015), using a stem or qualifier of "at TJJD" or "in TJJD" rather than "at/in your school." The items chosen reflected the frequency of violence (e.g., "How often do you worry about violence at TJJD?"), fights (e.g., "How often do youth get into physical fights at TJJD?"), bullying (e.g., "How likely is it that another TJJD youth will bully you?"), assaults (e.g., "How likely is it that you would be assaulted by another youth in TJJD?"), disrespect (e.g., "How often are people disrespectful to others at TJJD?"), and fairness (e.g., "At TJJD, how fairly do the adults treat the youth?"). Response options for the perceived dangerousness of violence, fights, bullying, assaults, disrespect, and fairness items are based on a 5-point frequency Likert scale (1 = *never*, 2 = *sometimes*, 3 = *about half the time*, 4 = *most of the time*, 5 = *always*). The subscale for fairness was reverse coded, wherein a higher score reflected less frequent fair treatment. The subscale totals were summed to reflect a total safety measure. Cronbach's alpha for the scale was .65, indicating adequate internal consistency.

Connection

To assess connection, the Interpersonal Support Evaluation List (ISEL; Cohen et al., 1985) was adapted for use in the context of a TJJD facility to measure youths' perception of connection with TJJD staff. The ISEL 10-item scale of "Belonging Support" (e.g., "There are several people that I trust to help solve my problems) was reduced to 7-items and operationalized

to measure perceived social support. The item stem was adapted to reference TJJD staff members (e.g., “Think of the TJJD staff members (coaches, dorm staff, teachers) you know and indicate to what extent you agree with the following statements”). The ISEL uses a 5-point Likert scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *neither agree nor disagree*, 4 = *somewhat agree*, 5 = *strongly agree*). The scale score was calculated by summing the items, with a higher value indicating greater feelings of connection. Cronbach’s alpha for the included ISEL items was .85, indicating acceptable internal consistency.

Difficulties Coping

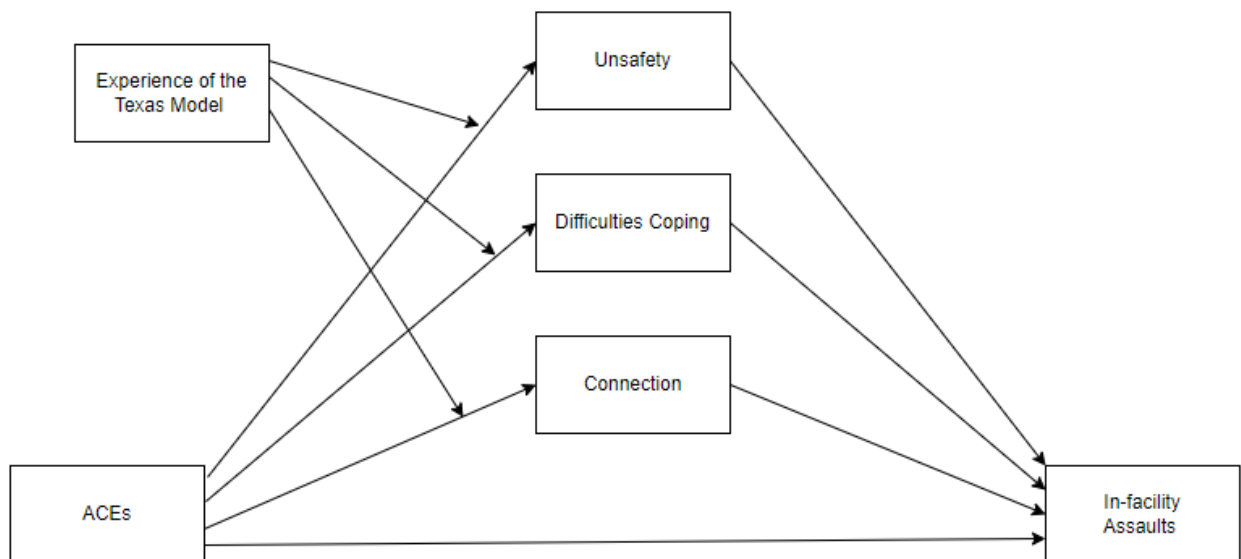
Youth’s coping ability was operationalized as emotional regulatory ability and measured through the 17-item Difficulty in Emotional Regulation Scale-Short Form (DERS-SF; Kaufman et al., 2016). The DERS-SF includes the scales of awareness (e.g., “When I’m upset, I am aware of my emotions”), clarity (e.g., “I have difficulty making sense out of my feelings”), goals (e.g., “When I’m upset, it is hard for me to focus on other things”), impulse (e.g., “When I’m upset, it is hard to control my behavior”), non-acceptance (e.g., “When I’m upset, I become embarrassed for feeling that way”), and strategies (e.g., “When I’m upset, there is nothing I can do to make myself feel better”). The DERS-SF uses a 5-point frequency Likert scale (1 = *never*, 2 = *sometimes*, 3 = *about half the time*, 4 = *most of the time*, and 5 = *always*). The score for each subscale is calculated by summing the individual items within each subscale, while the overall score is calculated by summing all items. For the entire instrument and its subscales, higher scores indicate greater difficulties in regulating emotions. In the current study, the entire instrument was used in analyses. Cronbach’s alpha for the total measure was .93, indicating acceptable internal consistency.

Analytic Plan

To analyze this dataset, multiple statistical procedures were used. First, descriptive analyses were run, and the assumptions of regression analysis were examined (i.e., normality, linearity, homoscedasticity, multicollinearity, and determining if outliers were present in the data set). Next, analyses were conducted to explore the relationships among variables and to determine if additional covariates, such as facility, age, or sex, should be included in subsequent analyses. **H1** and **H2** were examined using a correlational analysis and independent samples *t*-test, then further investigated through a hierarchical moderated regression. Moderation analyses were also utilized to test **H3**, with main effects and covariates entered in Block 1 and the 2-way interaction entered in Block 2, to determine if experience of the Texas Model moderated the influence of ACEs on in-facility assaults. Significant interactions were followed up with both simple slope tests (Rosenthal & Rosnow, 1985) and a re-centering strategy (Aiken & West, 1991). **H4** was then tested through a first stage moderated mediation using PROCESS Model 7 (Hayes, 2017), with

Figure 2

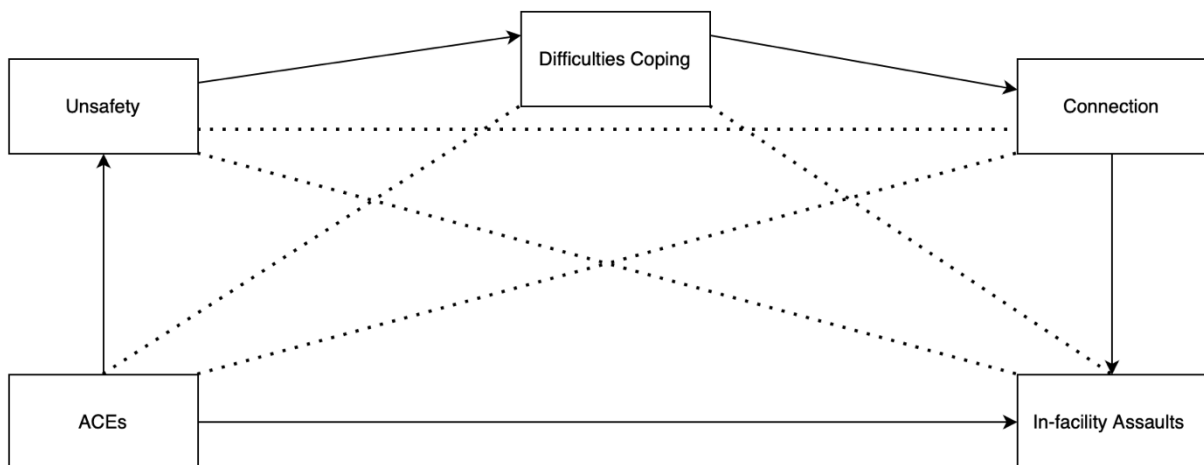
Proposed First Stage Moderated Mediation Model



unsafety, coping difficulties, and connection mediating the relationship between ACEs and behavioral noncompliance, and adolescents' experience of the Texas Model moderating the relationship between ACEs and unsafety, coping difficulties, and connection. Significant interactions were again followed up with both simple slope tests (Rosenthal & Rosnow, 1985) and a re-centering strategy (Aiken & West, 1991). The presence of mediation was examined using 5,000 bootstrap reiterations and 95% confidence intervals (see Figure 2 for the theorized model). Based on the results of the first stage moderated mediation analysis, significant mediators were then used in an exploratory serial mediation analysis to further examine the relationship between ACEs and the Pillars of TraumaWise Care predicting behavioral noncompliance using PROCESS Model 6 (Hayes, 2017; see Figure 3).

Figure 3

Proposed Serial Mediation Model



Quantitative Results

Descriptive Statistics

Participants who did not assent to the study were removed from the data set ($n = 752$). Additionally, participants who had not been in the facility for a minimum of 3 months were

removed from the dataset ($n = 754$), resulting in a final sample size of 1486. This was done to ensure that data being analyzed came from participants who experienced a minimum of 3 months within the secure JJ facilities prior to the assessment. However, data on participants' discharge date was unavailable, thus determining adolescents' length of stay within the facility was not possible. As illustrated in Table 1, the final sample was mostly male ($n = 1352$, 91%). The average age of the participants was 19.11 years and ranged from 14-22 years of age ($SD = 1.73$). Youths' average ACEs score was 3.47 ($SD = 2.51$). On average, youth committed 1.20 ($SD = 2.94$) assaults on staff and 2.38 ($SD = 4.11$) assaults on youth while detained (see Table 1 for summary of descriptive statistics).

Table 1

Background Characteristics (N = 1486)

Variables	<i>M (SD)</i>	Range
Age	19.11 (1.73)	14-22
ACEs	3.47 (2.51)	0-10
Assaults		
<i>Staff</i>	1.20 (2.94)	0-43
<i>Youth</i>	2.38 (4.11)	0-59

Note. ACEs = Adverse Childhood Experiences score, *M* = mean, *SD* = standard deviation.

Covariate Tests

The associations between the dependent variable and all potential covariate variables were then explored. First, the relationship between age and number of assaults was examined. A Pearson's correlation coefficient indicated a negative relationship between number of assaults and age ($r = -0.126$, $p \leq .001$, $R^2 = .02$). Gender was also tested as a potential covariate. An independent samples *t*-test showed that female participants committed a higher number of

assaults ($M = 5.88$, $SD = 9.48$) than males, $t(1484) = 4.50$, $p \leq .001$. Finally, the facilities that youth resided in were tested as potential covariates to determine if they should be controlled for in subsequent analyses. To do so, a one-way Analysis of Variance (ANOVA) was performed to compare the effect of five different facilities on assaults. Results revealed that there was a significant difference in the number of assaults committed by youth, $F(4,1481) = 2.87$, $p = .022$). Tukey's HSD for multiple comparisons found that the mean value of assaults was significantly different between Facility 3 and Facility 5, with Facility 5 reporting more in-facility assaults than Facility 3 ($p = .015$, 95% C.I. = [0.23, 3.33]). None of the remaining comparisons were significantly different, $ps \geq .140$. As such, age, sex, and facility were included as covariates in the following analyses, and facility was dummy coded with Facility 5 serving as the reference group.

Assumption Tests

The assumptions of regression were evaluated using SPSS Version 25. Given the relatively large sample size ($N = 1486$), normality of the error terms was assumed under the Central Limit Theorem (Field, 2015). The assumption of independence was assessed using the Durbin-Watson statistic with all values between 1 and 2, indicating that this assumption was not violated (Field, 2015). Homoscedasticity was then determined through visual inspection of a plot of standardized residuals versus standardized predicted values (Field, 2015). Multicollinearity was assessed by examining variance inflation factor (VIF) values, where all VIF values were less than 10, indicating that multicollinearity was not present (Myers, 1990). Using Mahalanobis Distance, it was also confirmed that no outliers were present among the variables of interest, as none of the $ps < .001$ (Hadi & Simonoff, 1993).

Correlational Analysis and Independent Samples *t*-Test

To test **H1**, a bivariate correlation was conducted between ACEs scores and in-facility assaults. The results indicated a small, positive relationship between ACEs scores and the number of in-facility assaults, ($r = 0.099, p \leq .001, R^2 = .01$). To examine **H2**, an independent samples *t*-test was run between the dummy-coded Texas Model variable and assaults. Youth's experience of the Texas Model was dummy coded based on Wave, as only youth in Wave 1 did not receive the Texas Model ($n = 429$) while youth in subsequent Waves 2-4 received the Texas Model as the standard of care inside the facilities ($n = 1057$). The independent samples *t*-test revealed that there was a significant difference between youths' experience of the Texas Model and the number of in-facility assaults. The results showed that youth who experienced the Texas Model committed a lower number of assaults ($M = 3.13, SD = 5.80$) than those who did not experience the Texas Model ($M = 4.79, SD = 7.20$), $t(1484) = 4.60, p \leq .001$. The effect size for the difference between groups was calculated using Cohen's *d*, resulting in a value of 0.25, which is considered a small effect size. Taken together, youth who reported a higher number of ACEs committed more assaults, whereas youth who experienced the Texas Model committed less assaults.

Moderated Hierarchical Regression

To examine **H3**, a moderated hierarchical regression was used to examine the interaction between receipt of the Texas Model (no vs. yes) in facilities and ACEs (mean centered) on in-facility assaults. Prior to running the analysis, receipt of the Texas Model was dummy coded (no experience of Texas Model was coded as 0; experience of the Texas Model coded as 1). Main effects and covariates (i.e., sex, age, and facility) were entered in Block 1, followed by the 2-way interaction in Block 2. The 2-way interaction between ACEs and adolescents' experience of the Texas Model was non-significant. However, there was a negative main effect of experiencing the

Texas Model on assaults, and a positive main effect of ACEs on assaults. Overall, the results suggest that experiencing a greater number of ACEs predicted more in-facility assaults, whereas experiencing the Texas Model predicted less in-facility assaults. Specifically, with each additional ACE, the number of assaults committed rose by 0.29, whereas adolescents who experienced the Texas Model committed 3.51 fewer assaults compared to their peers who did not experience the Texas Model. See Table 2 for inferential statistics.

Table 2

Inferential Statistics for Interaction between ACEs and the Texas Model Predicting Assaults

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
ACEs	0.29	0.12	2.46	.014
Experience of Texas Model	-3.51	0.42	8.41	≤ .001
Age	-0.99	0.11	9.03	≤ .001
Sex	4.77	1.12	4.25	≤ .001
Facility 1	3.88	1.11	3.48	.001
Facility 2	3.22	1.06	3.05	.002
Facility 3	2.66	1.04	2.57	.010
Facility 4	3.22	1.03	3.11	.003
ACEs*Experience of Texas Model	-0.15	0.14	1.07	.284

Note. ACEs = Adverse Childhood Experiences score.

First Stage Moderated Mediation

To address **H4**, a first stage moderated mediation was used to examine the influence of feelings of unsafety (Mediator 1), coping difficulties (Mediator 2), and connection (Mediator 3) on the relationship between ACEs and the number of assaults committed, as influenced by youths' experience of the Texas Model (0 = no, 1 = yes) while controlling for covariates. The

analysis was conducted using PROCESS 3.4 macro Model 7, wherein moderation occurs at the *a* path(s) (Hayes, 2017). Results showed that the relationship between ACEs and feelings of unsafety was significant, with a greater number of ACEs predicting stronger feelings of unsafety. However, ACEs were not associated with coping difficulties or connection. See Table 3 for inferential statistics and Figure 4 for a visual depiction of this stage of the model.

Table 3

Inferential Statistics for ACEs Predicting Mediators

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
					Lower	Upper
ACEs → Unsafety	0.31	0.11	2.81	.005	0.092	0.520
ACES → Difficulties Coping	-0.04	0.27	0.15	.884	-0.577	0.498
ACEs → Connection	0.001	0.20	0.002	.998	-0.391	0.392

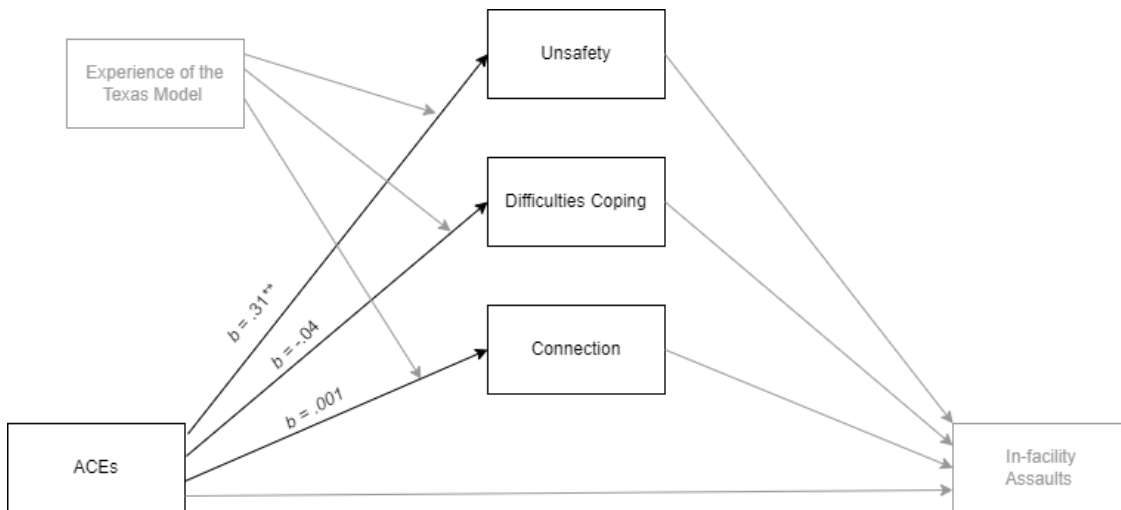
Note. ACEs = Adverse Childhood Experiences score, CI = Confidence Intervals.

Youths' experience of the Texas Model also negatively predicted feelings of unsafety. The 2-way interaction between youths' experience of the Texas Model and ACEs on unsafety was not significant. Although not statistically significant, the 2-way interaction between youths' experience of the Texas Model and ACEs is worth noting, and as such it was further examined. Simple slope tests (Rosenthal & Rosnow, 1985) within youths' experience of the Texas Model found that youth with higher ACEs showed higher feelings of unsafety among those who received the Texas Model and those who did not (see Figure 5). Looked at differently, group differences were examined at high (1 SD above the mean) and low (1 SD below the mean) ACEs. The results revealed that experiencing the Texas Model led to significantly lower feelings

of unsafety at low, moderate (i.e., mean), and high levels of ACEs. However, there was no significant effect of experiencing the Texas Model on coping difficulties or connection. Youths' experience of the Texas Model did not moderate the relationships between ACEs and coping difficulties, or ACEs and connection.

Figure 4

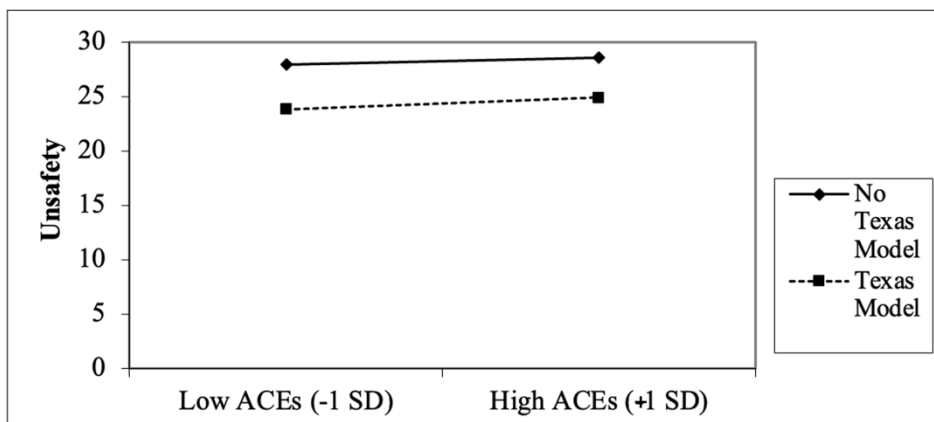
ACEs Predicting Unsafety, Difficulties Coping, and Connection



Note. * $p < .05$, ** $p < .01$, ACEs = Adverse Childhood Experiences score.

Figure 5

Relationship between ACEs and Texas Model Experience on Unsafety

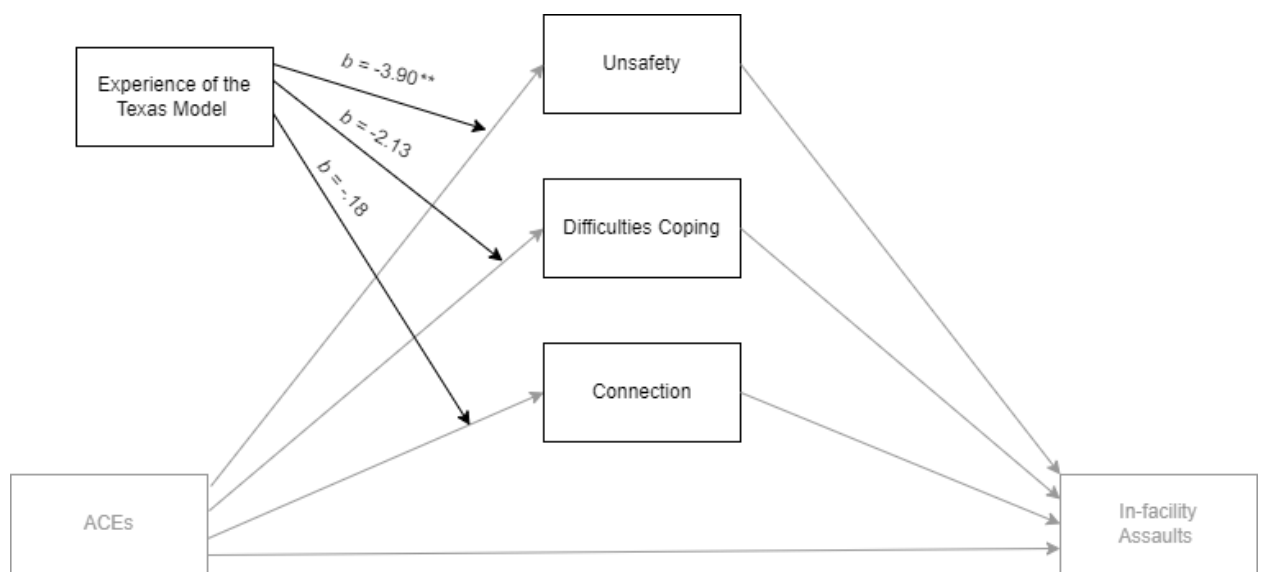


Note. ACEs = Adverse Childhood Experiences score.

Taken together, these results suggest that regardless of whether or not youth experienced the Texas Model, higher ACEs lead to higher feelings of unsafety. However, when youth did experience the Texas Model, their feelings of unsafety were lower as compared to youth who did not experience the Texas Model. See Table 4 for inferential statistics and Figure 6 for a depiction of the paths.

Figure 6

Experience of the Texas Model Predicting Unsafety, Difficulties Coping, and Connection



Note. * $p < .05$, ** $p < .01$, ACEs = Adverse Childhood Experiences score.

Additionally, the relationship between unsafety and number of assaults committed within the facility was significant, with greater feelings of unsafety predicting more assaults. A lack of connection was positively associated with facility assaults, while difficulties coping was not significantly associated with the number of assaults juveniles committed while in the facility. See Table 5 for inferential statistics. The 95% confidence intervals with 5,000 reiterations of the data indicated the direct effect of ACEs on assaults was non-significant (-0.077, 0.425). The indirect path for feelings of the mediator unsafety was significant for youth who experienced the Texas

Table 4*Inferential Statistics for Texas Model Moderating the Relationship between ACEs and Mediators*

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
					Lower	Upper
Texas Model → Unsafety	-3.90	0.69	5.68	≤ .001	-5.252	-2.555
Texas Model → Difficulties Coping	-2.13	1.73	1.23	.218	-5.518	1.264
Texas Model → Connection	-0.18	1.26	0.14	.886	-2.650	2.288
Texas Model * ACEs → Unsafety	0.26	0.14	1.79	.073	-0.025	0.543
Low ACEs	-4.57	0.79	5.78	≤ .001	-6.120	-3.015
Moderate ACEs	-3.91	0.69	5.69	≤ .001	-5.254	-2.557
High ACEs	-3.243	0.77	4.22	≤ .001	-4.753	-1.734
Texas Model * ACEs → Difficulties Coping	0.19	0.36	0.51	.607	-0.527	0.901
Texas Model * ACEs → Connection	0.28	0.26	1.05	.293	-0.241	0.798

Note. ACEs = Adverse Childhood Experiences score, CI= Confidence Interval

Model (0.369, 0.761) and youth who did not (0.092, 0.520). However, the index of moderated mediation revealed that there were no significant differences between assaults for youth who experienced the Texas Model and those who did not (-0.010, 0.166). The indirect paths for the two remaining mediators were nonsignificant at both levels of the moderator: coping difficulties for youth who experienced the Texas Model (-0.018, 0.034), coping difficulties for youth who did not experience the Texas Model (-0.021, 0.031), connection for youth who experienced the Texas Model (-0.065, 0.032), connection for youth who did not experience the Texas Model (-0.090, 0.004). See Figure 7 for the complete model.

Table 5

Inferential Statistics for Mediators Predicting Assaults while Controlling for ACEs and Covariates

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
					Lower	Upper
Unsafety → Assaults	0.24	0.07	3.67	≤ .001	0.111	0.367
Difficulties Coping → Assaults	0.02	0.03	0.89	.374	-0.030	0.079
Connection → Assaults	-0.10	0.04	2.68	.008	-0.173	-0.027

Note. CI = Confidence Intervals.

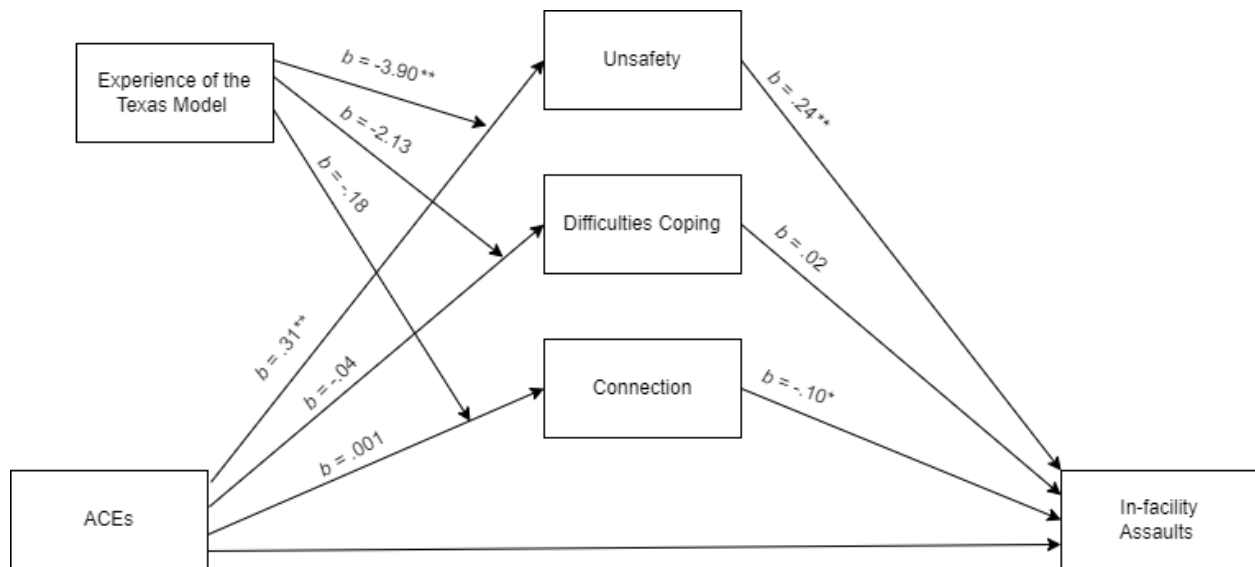
Exploratory Serial Mediation Analyses

A final exploratory analysis was then conducted to determine if the mediators were linked in a conceptually meaningful direction using PROCESS Model 6 (Hayes, 2017). As the variable representing feelings of unsafety was the sole mediator to have a significant indirect effect, the mediator unsafety was the initial mediator in all models tested. Thus, two different

serial order models were generated. The first model tested was ACEs predicting unsafety, unsafety predicting difficulties coping, difficulties coping predicting connection,

Figure 7

First Stage Moderated Mediation Model



Note. * $p < .05$, ** $p < .01$, ACEs = Adverse Childhood Experiences score.

and connection predicting assaults while controlling for the aforementioned covariates. The results indicated that the relationship between ACEs and feelings of unsafety was significant, with a greater number of ACEs again predicting stronger feelings of unsafety. Youths' feelings of unsafety were then positively related to coping difficulties. Interestingly, greater coping difficulties were associated with greater feelings of connection. Finally, connection was negatively related to in-facility assaults, indicating that lower feelings of connection predicted a greater number of in-facility assaults.

The 95% confidence intervals with 5,000 reiterations of the data indicated the total effect of ACEs on assaults was significant (0.027, 0.521). However, the direct effect of ACEs on assaults was non-significant (-0.077, 0.425). The total indirect effect was significant, (.021,

.229), as were the indirect paths from ACEs to unsafety to assaults (.034, .247) and ACEs to unsafety to coping difficulties to connection to assaults (-.012, -.002). See Table 6 for inferential statistics and Figure 8 for a depiction of Serial Mediation Model 1.

Table 6

Inferential Statistics for Serial Mediation Model 1

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
					Lower	Upper
ACEs → Unsafety	0.47	0.07	6.19	≤ .001	0.325	0.628
Unsafety → Difficulties Coping	0.43	0.10	4.43	≤ .001	0.237	0.614
Difficulties Coping → Connection	0.20	0.03	7.08	≤ .001	0.145	0.256
Connection → Assaults	-0.10	0.04	2.68	.008	-0.173	-0.027

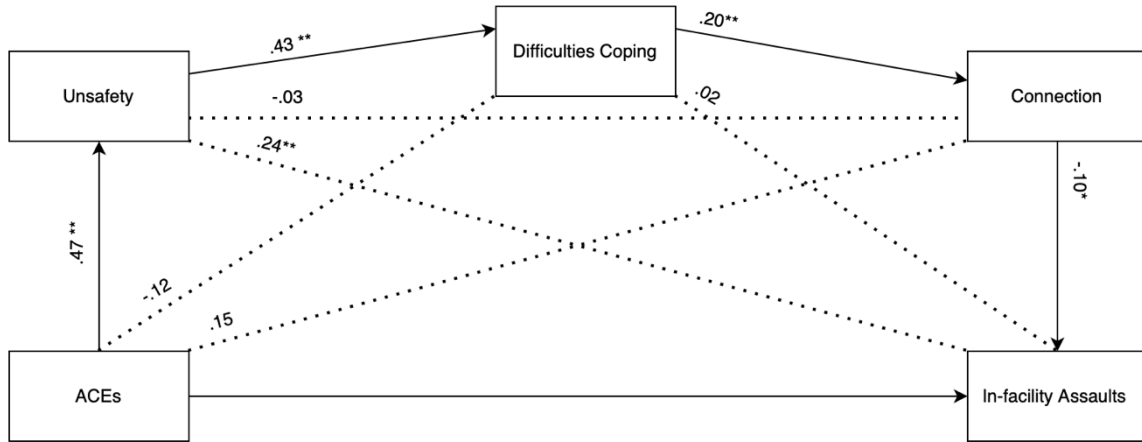
Note. ACEs = Adverse Childhood Experiences score, CI= Confidence Intervals.

The second model tested was ACEs predicting unsafety, unsafety predicting connection, connection predicting difficulties coping, and difficulties coping predicting assaults, while controlling for covariates. Youths' feelings of unsafety were not significantly related to connection, nor were ACEs. Greater connection, however, was associated with more difficulties coping. Finally, coping difficulties were found to be unrelated to youths' in-facility assaults. The 95% confidence intervals with 5,000 reiterations of the data again indicated that the total effect of ACEs on assaults was significant (.009, .210). The direct effect of ACEs on assaults was non-significant (-.087, .408). The total indirect effect was significant, (.007, .203), as was the indirect path from ACEs to unsafety to assaults (.027, .228). See Table 7 for inferential statistics and

Figure 9 for a depiction of Serial Mediation Model 2. Table 8 reflects the indirect effects for all paths tested in the serial models.

Figure 8

Serial Mediation Model 1



Note. * $p < .05$, ** $p < .01$, ACEs = Adverse Childhood Experiences score.

Table 7

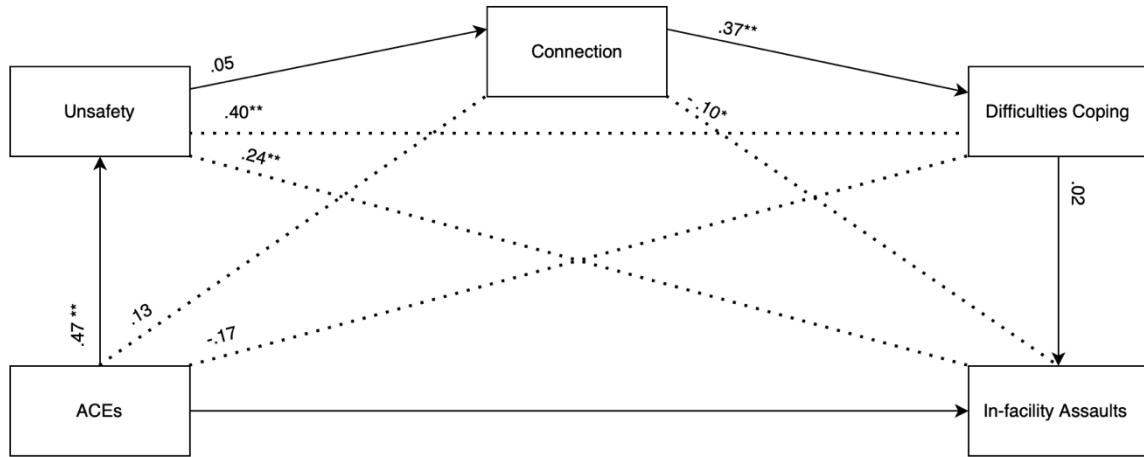
Inferential Statistics for Serial Mediation Model 2

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
					Lower	Upper
ACEs → Unsafety	0.47	0.07	6.19	≤ .001	0.325	0.628
Unsafety → Connection	0.05	0.07	0.80	.426	-0.083	0.196
Connection → Difficulties Coping	0.37	0.05	7.08	≤ .001	0.266	0.470
Difficulties Coping → Assaults	0.02	0.03	0.890	.374	-0.029	0.079

Note. ACEs = Adverse Childhood Experiences score, CI= Confidence Intervals.

Figure 9

Serial Mediation Model 2



Note. * $p < .05$, ** $p < .01$, ACEs = Adverse Childhood Experiences score.

Table 8

Indirect Effects for Serial Mediation Models 1 and 2

Path	<i>b</i> (<i>SE</i>)	95% CI	
		Lower	Upper
Model 1: ACEs-Unsafety-Difficulties Coping-Connection-Assaults			
ACES-Unsafety-Assaults	0.15 (0.06)	0.044	0.280
ACES-Coping-Assaults	.0002 (0.01)	-0.018	0.020
ACES-Connection-Assaults	-0.02 (0.02)	-0.066	0.003
ACES-Unsafety-Coping-Assaults	0.01 (0.01)	-0.01	0.03
ACES-Unsafety-Connection-Assaults	0.001 (0.01)	-0.008	0.013
ACES-Coping-Connection-Assaults	-0.0002 (0.001)	-0.010	0.010

Table 8 (continued)

Path	<i>b</i> (<i>SE</i>)	95% CI	
		Lower	Upper
ACEs-Unsafety-Coping-Connection-Assaults	-0.01 (0.004)	-0.015	-0.001
Model 2: ACEs-Unsafety-Connection-Difficulties Coping-Assaults			
ACEs-Unsafety-Assaults	0.15 (0.06)	0.027	0.228
ACEs-Connection-Assaults	-0.02 (0.02)	-0.067	0.005
ACEs-Coping-Assaults	-.002 (0.01)	-0.024	0.014
ACEs-Unsafety-Connection-Assaults	-0.01(0.01)	-0.019	0.005
ACEs-Unsafety-Coping- Assaults	0.01 (0.01)	-0.010	0.028
ACEs-Connection-Coping- Assaults	0.002 (0.004)	-0.004	0.011
ACEs-Unsafety-Connection-Coping-Assaults	0.0004 (0.001)	-0.001	0.003

Note. ACEs = Adverse Childhood Experiences score, CI = Confidence Intervals.

Clinician Feedback

The qualitative data collection conducted for the purposes of the study were approved by Texas Christian University's Institutional Review Board. Prior to the individual interviews, a list of questions surrounding the use of trauma-informed care with JJ youth and establishing safety, connection, and coping within a JJ facility, and questions eliciting feedback on the quantitative results were developed. These questions were provided to the JJ facility liaison for feedback and approval prior to the interview sessions. The interviews were conducted virtually in a semi-structured, interview format with a primary moderator. The recordings derived from the interviews were recorded and transcribed using a virtual teleconferencing platform (i.e., Zoom).

After the removal of any accidental identifying information from the transcripts, the transcripts were reviewed for overarching themes, impressions, and examples to provide color to the quantitative results.

Participants

A total of four participants were recruited to provide feedback on the quantitative results and the larger implementation of a trauma-informed model of care within a JJ setting.

Participants were identified through prior collaboration on a trauma-informed intervention for JJ youth (see Knight et al., 2021) and through the JJ facility liaison, who identified two TJJD Texas Model Mentors willing to be interviewed. The title “Texas Model Mentor” refers to TJJD staff members who work directly with juveniles in the facility and are recognized team leaders that have excelled in implementing the Texas Model. All of the participants recruited consented to and participated in the individual interviews.

Procedure

After potential participants were identified, they were contacted by the researcher or the JJ liaison via email to inform them about the opportunity, its purpose, and the voluntary nature of participation. Each of the potential participants confirmed their interest and scheduled their individual interview sessions directly with the researcher. Prior to the interview, participants consented to the interview and to audio/visual recording. The interviews were conducted and recorded via Zoom. The transcripts from the interviews were produced via Zoom’s transcription service. The interviews lasted from 35 min. to 42 min., and were reviewed by the researcher for applicable quotes, reoccurring themes, and impressions of the quantitative results.

Results

To begin the interviews, participants were asked about the prevalence of trauma within the JJ populations they have worked with. Each of the participants expressed that, in their experience, the overwhelming majority of JJ-involved youth have experienced trauma. One participant stated that, “All of them, 100%, have experienced some sort of trauma. I always tell them, even if you don’t think you come from a traumatic history, or you don’t have an experience of trauma, coming into the facility was traumatic enough.” Participants also reflected on how trauma tends to manifest within youth. For example, a participant said that, “The biggest [way trauma manifests] is behavioral issues, whether that’s at school or in the home. A lot of the kids use their bodies to get their needs met so like getting into physical altercations, or not knowing how to regulate, so like. If they're upset, they may punch a wall or hit a caregiver. Sometimes I've seen like just difficulty with like tolerating stress or distress, and like that fear-based behavior activating, or they'll like leave a situation, like leave a classroom or something like that without permission. But typically, it's those bigger behaviors like the physical aggression and things like that, that get them into some sort of situation where they end up with juvenile services.” This view was echoed by all of the participants, with each of them mentioning aggression, and emotional and physical outbursts as symptoms of trauma.

The interview then moved into a discussion of trauma-informed care within JJ facilities. The two participants who worked in TJJD facilities were asked to describe how their respective facilities have changed since implementing the Texas Model. Both acknowledged that the transition from corrections-focused treatment to trauma-informed care was not easy, as some staff were highly accustomed to the correctional mindset. However, they spoke positively about how the Texas Model has influenced their facilities. The first participant compared the atmosphere in the facility before and after its implementation, saying it “made things lighter.”

Specifically, they said that, “I feel like [the Texas Model] made significant changes, even not only with just like with the kids, but with the staff as well...I've seen both sides of it, if that makes sense like before trauma-informed care and, you know, I guess during or after and I think it's made things lighter you know? Even like with your interactions with people. It felt very cold when I first started. I think we try to build connection, since we try to use compromises and give choices to the staff as well. You know we're trying to TBRI the adults which I think is positive.” These sentiments were echoed by the other TJJD Texas Model Mentor, who also mentioned initially resistant staff coming to accept and appreciate the Texas Model. They said that, “I had a couple of staff come up to me and say, you know at first, I wasn't with this Texas Model, but I get it now, I get it...You get a better result, and I'm just happy to see this in our agency, and I'm happy to continue to see and help push this along, because as time goes on, it is getting better, and better, and better.” Later on in the conversation, this participant further reflected on the implementation of the Texas Model, saying that, “It's a better culture. We're building a better culture. I know it's not going to be an overnight thing, and but the momentum is building. That train is moving.”

Each of the participants were then asked to describe the concepts of safety, connection, and coping in their own words, then to provide examples of ways to encourage these concepts with adolescents in secure JJ facilities. All of the participants acknowledged that the trauma-informed concept of safety is difficult to put into words. One participant described safety as, “More of a feeling...the easiest way I tell the young people I work with is that you feel it in your bones.” When asked how they attempt to make the youth they work with feel safe, participants described establishing routines, providing access to water and snacks to ensure physical needs are met, and informing youth of what is to come so that they are aware of what to expect during

their time together. However, one participant acknowledged that within a secure, JJ setting, some elements that diminish safety cannot be eliminated altogether, such as the loud doors that lock and slam, bright lights, and “punitive behavior from staff or scary behavior from peers.” The conversation then moved into how safety can affect adolescents’ behavior. The participants acknowledged that youth who do not feel safe act more guarded and are less likely to engage with others. One of the interviewees also mentioned when youth do not feel safe, they often act aggressively. Specifically, “If somebody flips their lid [i.e., becomes dysregulated] and everybody's in a unit together. It's more likely that another kid will, and so on.... Then, you know, like their brain, they're not really online. And so if a kid gets upset about court or they get upset about something that happens from staff, and they flip their lid and act out in [an] aggressive way. Then they're not paying attention to who is around them. So I mean, you're talking about like other kids could be physically hurt potentially. Staff could be hurt.”

The conversations then turned to connection. Each of participants spoke of the importance of connection. Regarding how they connect with youth, one participant said that, “In a lot of ways, [connection] starts in the very beginning” through using eye contact with the adolescents, asking them what their name is, and shaking their hands when they meet for the first time. Another participant said that they attempt to “lead everything with connection,” and see connecting with youth as a goal of every interaction. Interestingly, when participants were asked about barriers to connection within a JJ setting, two of the participants immediately cited staff’s own trauma histories. One participant said that, “[Staff’s] own sense of need for security and their own lack of felt safety [gets in the way of staff connecting with youth.] I think I think a lot of these staff, don't understand. They probably never had felt safety in their own life, and they're still in this previous arena, where they feel that safety and security are everything, and that is

paramount.” With regards to the phrase “previous arena,” the participant was referring to corrections-based, non-trauma-informed, JJ protocols. When prompted on how to aid staff in connection and moving out of the aforementioned previous arena, that participant described having someone that can “mentor and model healthy connection with youth” as the best tool to encourage staff to connect with youth.

The participants were then asked to discuss what coping looks like within JJ-involved youth. One participant stated that coping varies based upon how trauma-informed the facility is; for example, in a highly trauma-informed facility, “Staff are very intentional of like getting down to that level with [youth] and kind of helping them co-regulate.” When asked for examples on how staff co-regulate with youth, the participant listed breathing exercises, stretching, physical activity (e.g., wall-pushups, shooting basketball hoops, walking), and allowing youth to talk to staff. However, each of the participants addressed that negative coping skills are often present in JJ facilities, naming fights, altercations, and finding and hiding items that can be used to engage in self-harm. In particular, one participant stated that some youth intentionally try to get restrained as an unhealthy coping mechanism. For example, “If they're mad about something they would just be like I want to get restrained, and basically that's them just wanting to be secured. They go and look out into the dorm, and basically just get aggressive and try to fight. Whether it's throwing things or trying to, you know, find a staff, or start something for no reason. That's the one I have not seen that in a in a while, and I used to hear that a lot.” They went on to say that now, youth are able to request access to regulation rooms or specific regulatory tools, such as a weighted blanket.

Then, participants were asked how safety, connection, and coping interact to help children heal from traumatic experiences, and if they felt one pillar was more important than the

others. Overall, the participants expressed that all pillars were necessary and important. Specifically, one participant said that, “There's some analogy about a three-legged stool, and you need all three legs in order for the stool to work, and I think that that's how that works...A kid is not going to be able to regulate if they don't feel safe. So, I mean, I don't know how you could get one without the other. Honestly. Because they're equally important in creating an environment where both adults and kids can thrive.”

The results of the study were then presented to the participants. Participants were asked if the quantitative results from the study surprised them, or if they aligned with their views and experiences. Regarding the relationship between ACEs, unsafety, and assaults, and how it changes based upon youths' experience of trauma-informed care, all of the participants said that these results were unsurprising. One participant said, “No, that doesn't surprise me, and I think that that is what the facility that I'm at has seen as well, is that the [safer] people feel in the environment, the less external behavior, like aggression, and less internal behavior like self-harm, has happened.” Similarly, another participant said, “No, it doesn't surprise me at all. I mean, safety is huge. I mean, we all react differently when you know when a mountain lion is chasing us, we're going to flight, fight, or freeze. And that's exactly what these youth do. They've probably come from really violent backgrounds and their own unique catalogue of experiences really speaks to who they are and how they respond to dangers and that's going to lead to those assaults and things like that.”

However, participants were somewhat surprised by the lack of effect trauma-informed care had on connection and coping difficulties. Multiple participants acknowledged the difficulties of connection within a JJ environment. One participant further explained this, saying that “Yeah, connection is really hard, and it takes a lot of work on the part of the adults to do

their own work, and to show up in a way that is authentic. And so, I can see how [experiencing trauma-informed care and connection] aren't necessarily related.” Likewise, three of the participants expected that a trauma-informed model of care would predict fewer coping difficulties. The other participant found the results regarding trauma-informed care and coping more plausible, expressing that, “Coping is becoming a regular term for a lot of these youth that we're working with, but it's still fairly new. I say, 2 to 3 years down the road we're going to have a completely different kind of [JJ] field, recognizing coping strategies, and how important it is for these youth to cope. Because I don't think it's something that's on the forefront of a lot of these facilities right now.”

As the results indicated the importance of feeling safe, the participants were then asked for ways they could help encourage safety amongst youth in JJ facilities. One participant said that if they could do anything, feasible or not, it would be to ensure that all staff receive training on trauma-informed care and develop an understanding of it. In doing so, they feel staff would be able to, “[See] these kids as kids. I think we get sucked into their paperwork and maybe an offense that they've had, and then we almost hold that against them. And so we need to get away from that, and just see the young person and their own unique catalogue of experiences that brought them to who we are and how we are going to help them heal from all of that. But I think it's really just a holistic piece that we need to see the kid and not the crime.” Additionally, multiple participants revisited the importance of modeling behavior. Specifically, one participant said, “I spoke earlier about modeling and mentoring for staff at facilities. We also need to model and mentor for these young people to show them what a healthy relationship is. Show them what a healthy adult or caregiver is. Show them that what it looks like to have healthy relationships between peers. So...modeling for them, showing them what they need, following through with

our word being transparent and vulnerable, we need to really expect of ourselves what we expect of these kids. And that's going to start to show them safety.”

The participants also emphasized the importance of aiding JJ-involved youth in understanding the circumstances unfolding around them to encourage feelings of safety. More specifically, when asked what could be done to help adolescents feel safe within the facility, three of the four participants spoke about improving the intake process and intentionally trying to make youth feel safe during this transition into the facility. The primary strategy suggested was open communication with them during this process. Specifically, “I think, like talking to them about what's going on is a big deal...I think, sometimes like from law enforcement transfer to juvenile justice a lot of times the adults are talking to each other, but they may not be talking to the youth around like, hey, this is what's gonna happen. This is what we're taking where we're taking you. We're gonna call your caregiver and you know, like narrating in a sense what's going on so that they know what's happening.” In addition to increasing feelings of safety, the participant also said that this could increase connection as well. Though they acknowledged this suggestion may not be feasible, three of the four participants said they wished they could address adolescents and explain the facility in a more comforting environment within the facility before bringing them to their cells. One participant said, “I don't know how this would work, but almost like bringing them into like a living room environment, just for the initial, like contact and conversation rather than putting them in like essentially a cell, to have the conversation... not to leave them there necessarily, but to have the conversation of like what to expect. This is what's gonna happen...I feel like that's actually like something that perhaps could be done, or steps could be made towards that.” Likewise, another participant said, “This is their first day on campus. I think that I would sit them down, and in a calming type room and we'd be in a group,

and we'd introduce each other. And let them know, my job is to make sure that you guys are safe. You're taken care of. You're not gonna be mistreated. Say, let's make sure we're respectful of what we're saying to each other." This participant went further, to say they would determine how they can help the youth feel safe by asking, "What does safety look like to you? How do you feel safe? Take on that, and to let them know that that's a very important thing to us, to me... just laying out the foundation to let them know that we're going to keep them safe." This participant went on to say that Texas Model Mentors should also be a part of the intake process and assist youth with transitioning into facilities to ensure that the youth feel their safety is a priority to TJJD staff.

Taken together, the participants interviewed expressed the utility of trauma-informed care within JJ settings. Regarding the Texas Model specifically, the participants who work at TJJD described positive changes within the facilities that they directly attribute to the Texas Model. Overall, the participants' experiences and views of trauma-informed care aligned with the quantitative results from the current study. Additionally, the participants had similar ideas on improving youths' feelings of safety within JJ facilities and described specific strategies that could be employed to do so.

Discussion

The treatment of adolescents involved with the JJ systems has slowly evolved from a from a punishment-oriented model of treatment, favoring force and military-inspired guidelines, to a rehabilitative treatment model, with a focus on addressing underlying needs and factors contributing to problematic behaviors (Smoot, 2019). Aligned with this rehabilitative focus, recommendations have been made for JJ departments to develop and carry out models of trauma-informed care within their facilities. A specific framework for treating children and adolescents

who experienced complex trauma can be found within The Three Pillars of TraumaWise Care (Bath, 2015). As with the general model of trauma-informed care, minimal education and training is needed to implement its principles of safety, connection, and coping into everyday interactions to aid young people in healing from trauma. Similar to the broader approach of trauma-informed care, the Three Pillars of TraumaWise Care can be utilized in any setting where adults interact with youth. However, little is known about how facility-wide models of trauma-informed care affect youth within JJ settings. While multiple studies have documented the efficacy of specific trauma-informed interventions in JJ facilities (see Zettler, 2021, for a review), no research has been conducted on the facility-wide implementation of a trauma-informed model of care.

Recently, TJJD implemented its own model of trauma-informed care, the Texas Model for Intervention, within its five facilities (Texas Juvenile Justice Department, 2020). The intervention is rooted in TBRI, an attachment-based, trauma-informed intervention with core principles that map onto Bath's Three Pillars of TraumaWise Care. Early research on TJJD's Texas Model for Intervention is promising, with results indicating a decrease in use of force by staff, as well as increased reported staff safety (Texas Juvenile Justice Department, 2020). While models of trauma-informed care, such as the Texas Model, are gaining favor amongst JJ policy makers and JJ staff, evidence of their efficacy is necessary for widespread implementation. Furthermore, it is necessary to understand how trauma-informed care affects behavior within the facility in order to maximize juveniles' in-facility gains. Regarding the Pillars of TraumaWise Care, despite the theoretical basis of this approach, no research has documented if changes in these pillars are responsible for reductions in trauma symptoms. Additionally, it was unknown if the pillars carry equal importance, or if the development of the pillars are dependent upon one

another. Therefore, the current study sought to examine the effect of a facility-wide model of trauma-informed care (i.e., the Texas Model) on youths' behavioral noncompliance (i.e., in-facility assaults on peers and staff members). More specifically, the study aimed to:

1. Determine if youths' ACEs are associated with behavioral noncompliance, as evidenced by the number in-facility assaults committed by youth (**H1**);
2. Examine the relationship between youths' exposure to the Texas Model of Intervention and youths' behavioral noncompliance (**H2**);
3. Provide more information on how experiencing the Texas Model influences the relationship between adolescents' trauma histories and behavioral noncompliance (**H3**);
4. Determine if Bath's Three Pillars of TraumaWise Care (i.e., safety, connection, and coping) are the mechanism of change behind the observed relationship between experience of the Texas Model and behavioral noncompliance (**H4**).

A bivariate correlation showed that adolescents' ACEs were associated with behavioral noncompliance, or in-facility assaults (**H1**). As hypothesized, ACEs were positively related to in-facility assaults. These findings align with previous research conducted on ACEs and behavior, which indicate that ACEs are associated with increased violence and aggression (Duke et al., 2010; King, 2021; McRae et al., 2021; Mumford et al., 2019). However, little research has been conducted on ACEs influencing violent and aggressive behavior within an adolescent population, let alone on the behavior of adolescents inside of a residential JJ facility. Thus, these results extend the previous literature surrounding ACEs and justice-involved youth, revealing that their trauma histories impact their behavior inside of facilities. As such, these findings highlight the need for a trauma-informed approach to juveniles' treatment within residential facilities. These

findings mirror the qualitative feedback received from TJJD staff and clinicians. As expressed within interviews, adolescents who have experienced trauma often respond with aggression and behavioral non-compliance while inside JJ facilities.

To further provide evidence for the usage of trauma-informed care within JJ settings, an independent samples *t*-test was performed to compare adolescents who experienced the facility-wide model of trauma-informed care (i.e., the Texas Model) to adolescents in the facility prior to its implementation on the number of in-facility assaults they committed against staff and their peers. Youth who experienced the Texas Model committed less in-facility assaults than youth who did not experience the Texas Model, supporting **H2**. Previous research has found that short-term, specific trauma-informed interventions led to a reduction in behavioral issues and violence amongst JJ-involved youth (Zettler, 2021). However, to the authors' knowledge, this study is the first to examine the effects of a facility-wide model of trauma-informed care in a JJ setting. This supports the notion that implementing JJ facility-wide models of trauma-informed care, rather than specific interventions accessible to only a portion of the facility, can yield meaningful improvements in juveniles' behavior. The information derived from the clinician feedback sessions further validates these findings, with participants expressing improved behavior within the facilities, and less in-facility assaults on youth and staff in general.

The influence of a trauma-informed model of care on the observed relationship between ACEs and behavioral noncompliance was further evaluated through a moderated hierarchical regression. The results found that both ACEs and experience of the Texas Model predicted behavioral noncompliance while controlling for age, sex, and facility. More specifically, a greater number of ACEs predicted more in-facility assaults, whereas experiencing the Texas Model predicted less in-facility assaults. There was, however, no interaction between ACEs and

the Texas Model. This indicates that regardless of an adolescents' trauma history, the Texas Model still reduced the number of assaults youth committed within the facility. Therefore, all adolescents who experienced trauma-informed care benefited from their exposure. These findings support **H3** by evidencing that experiencing the Texas Model improved the behavior of all juveniles within the JJ facilities. These results show that trauma-informed care could improve the behavior of all JJ-involved youth regardless of their trauma histories, which further promotes its usage amongst this population. Thus, the current study extends the body of research on trauma-informed care by providing evidence that the benefits of trauma-informed care can be generalized to JJ-involved youth without extensive histories of trauma.

While the observed behavioral changes amongst this population are encouraging, little is known about the mechanism of change behind the trauma-informed care approach. According to Bath's Three Pillars of TraumaWise Care, trauma-informed care can improve youths' feelings of safety and connection, and improve their coping skills to mitigate the symptoms of trauma, including behavioral issues (Bath, 2015). However, to the author's knowledge, no study has assessed if these pillars function as the driving factors behind models of trauma-informed care. Therefore, the fourth and final aim of this research was to determine if experiencing the Texas Model altered the relationships between ACEs and levels of unsafety, connection, and difficulties coping, which then predicted behavioral noncompliance. It was expected that ACEs would predict greater unsafety, greater coping difficulties, and less connection, which would then each predict great behavioral noncompliance, or a higher number of in-facility assaults. However, it was further hypothesized that juveniles who experienced the Texas Model would report less feelings of unsafety and fewer coping difficulties, but greater connection regardless of their ACEs, which in turn would predict lessened behavioral noncompliance (**H4**). A first stage

moderated mediation was used to test this hypothesis, with feelings of unsafety, coping difficulties, and connection tested as mediators of the relationship between ACEs and the number of assaults committed, and moderated by youths' experience of the Texas Model. The analysis revealed that more ACEs predicted greater feelings of unsafety but did not predict difficulties coping or connection. Likewise, youths' experience of the Texas Model also predicted feelings of unsafety, with experiencing the Texas Model leading to lower feelings of unsafety at all levels (i.e., low, average, and high) of ACEs. Experiencing the Texas Model did not affect youths' coping difficulties or feelings of connection; however, lower connection did predict a greater number of in-facility assaults. The results from this analysis partially support **H4**. This study was the first to examine if the observed benefits of trauma-informed care (i.e., reduced assaults) are due to changes in safety, connection, and coping. Based upon the Three Pillars of Trauma-wise Care (Bath, 2015), it was expected that experiencing the model of trauma-informed care would result in improved safety, connection, and coping, which would then predict lessened behavioral noncompliance. However, this was only observed in reference to youths' feelings of unsafety. This research demonstrates that observed outcomes of trauma-informed models of care can be attributed to changes in feelings of safety. The clinicians expressed that these findings aligned with their personal experiences and observations of trauma-informed care. The results regarding unsafety aligned completely with their perspective. However, some participants were surprised at the lack of relationships between the Texas Model, connection, and coping. They did acknowledge that the absence of a relationship could be due to staff's ability to connect with youth and the nuances of developing healthy coping skills in addition to reducing difficulties in coping.

The importance of safety was then further explored through a final exploratory analysis. Similar to the lack of research on whether or not the Pillars of TraumaWise Care are the mechanism of change behind trauma-informed care, no research has examined whether or not the pillars are independent of one another, or if one pillar is necessary for the development of the other pillars. To address this, a serial mediation model was used to assess if the Pillars of TraumaWise Care were linked in a specified direction. As unsafety was the only significant mediator found in the first stage moderated mediation, it was used as the initial mediator in both of the serial mediation models tested. The first model tested was ACEs predicting unsafety, unsafety predicting difficulties coping, difficulties coping predicting connection, and connection predicting assaults. The resulting model found that unsafety again served as a mediator between ACEs and in-facility assaults. Additionally, greater feelings of unsafety predicted greater coping difficulties, which then predicted greater feelings of connection. Finally, greater connection predicted less in-facility assaults. While the observed relationships between ACEs and unsafety, unsafety and coping difficulties, and connection and assaults were aligned with the Three Pillars framework, the relationship found between coping difficulties and connection was not. The finding that greater coping difficulties predicted greater connection was surprising. It may be partially attributed to the setting of the study. As the participants in the study were residents of secure JJ facilities, their peers in the facility may also experience more difficulties coping than non-JJ youth. Meeting and interacting with others who share in these difficulties may contribute to youths' general perception of connection in the facility, which could explain the observed results of the current study. Alternatively, youth with greater coping difficulties may exhibit more behavioral and emotional needs, thus providing staff with opportunities to meet those needs. This, in turn, could positively contribute to juveniles' perceptions of connection with

staff. If replicated in future studies, this finding could inform how JJ staff seek to connect with youth within residential facilities.

The second model tested was ACEs predicting unsafety, unsafety predicting connection, connection predicting difficulties coping, and difficulties coping predicting assaults. Youths' feelings of unsafety were not significantly related to connection, but again greater connection was associated with more difficulties coping. Ultimately, coping difficulties did not predict youths' in-facility assaults. Taken together, the results from this analysis suggest that feelings of unsafety influence difficulties coping, which then influences connection, which in turn influences behavioral noncompliance. Therefore, the concept of safety is critical to improving in-facility behaviors. This knowledge could benefit both JJ staff and adolescents within the facility, as understanding the importance of adolescents' feelings of safety could lead to an emphasis on developing those feelings despite the environment. Doing so could further improve facility practices and adolescents' in-facility behavior, which could then increase their rehabilitative gains. Clinicians and TJJD staff had similar ideas on how this information could be used to improve procedures and functioning within JJ settings. It is of note that three of the four participants separately brought up utilizing intake procedures, when youth are transitioning into the secure facilities, as an opportune time to emphasize and establish safety with youth.

Future Directions

While the current study provided evidence for the use of facility-wide models of trauma-informed care in JJ populations, the findings' generalizability is limited by several factors. The first limitation of this study is the absence of certain participant demographic characteristics, such as race, ethnicity, type of offense they were charged with, and their sentence length. Previous studies have found that racial and ethnic identity can affect the symptoms of trauma,

with certain racial and ethnic groups reporting lessened symptoms of trauma (Goldstein et al., 2021). For example, a study conducted using data from 2010 examined race as a moderator of the relationship between ACEs and mental health in an adult sample and found that higher ACEs scores had a more negative effect on the mental health of individuals who are black, indigenous, people of color (LaBrenz et al., 2020). Similarly, data on charges and sentence length were not provided. The exclusion of this information prevented the researcher from controlling for offense type and sentence length. As more serious offenses carry more time in the facility, this information could have affected the observed results. In the future, researchers should measure and incorporate these variables into analyses of trauma-informed care, as doing so could provide further detail on who benefits from trauma-informed care and whether or not various factors affect the observed benefits.

Likewise, information on the facilities' implementation of the trauma-informed model of care (i.e., the Texas Model) was not collected, and as such could not be included in the analyses. It is well-established within implementation science that different organizations, or facilities, differ on their uptake of new policies and practices (Farahnak et al., 2020; Gray et al., 2014). As such, it is reasonable to assume that there were between-facility differences on the implementation of the Texas Model. For example, some facilities may have only incorporated select techniques, and staff at the respective facilities more than likely varied in the extent to which they implemented the Texas Model. While facility was controlled for within the analyses through inclusion as a predictor, it is not possible to unpack how the differences between the facilities affected the results. For example, the average number of in-facility assaults was higher at Facility 5 than at Facility 3. However, without in-depth knowledge of each facility's characteristics, it is impossible to determine what accounts for this difference. Therefore, we

cannot say with certainty that the results of the study can be attributed solely to Texas Model. Additionally, staff's attitudes toward trauma-informed care in general, the Texas Model, and TBRI were not measured. This information is critical, as staff attitudes toward new programming have been found to predict how well new policies and procedures are adopted (Viglione & Blasko, 2018). Thus, future studies on trauma-informed models of care within JJ facilities should include implementation measures to understand how fully each facility embraces and integrates the model. These limitations could be addressed in future studies by including measures that gauge staff attitudes toward trauma-informed care in general (e.g., the Attitudes Related to Trauma-Informed Care Scale; Baker et al., 2016). Specific to the evaluation of the Texas Model, measures that capture staff's perspectives on TBRI in particular and their usage of its strategies could also be administered to staff, such as the TBRI Acceptability, Appropriateness, and Feasibility Scale and the TBRI Professional Use Scale (Joe et al., 2017).

Another limitation of this research lies within the study design. The data collected and analyzed for the current study were cross sectional; this prevents the analyses presented from being considered true mediation and indicating causality. In order for mediation to occur, the data must be temporally ordered. Additionally, it is unknown the adolescents' feelings of unsafety, connection, and difficulties coping changed over time, or from when they entered the facility to when they left the facility. Therefore, we cannot be certain that a change between juveniles' initial feelings of safety, connection, and coping occurred during their time in the facilities. To address this, future studies should assess youths' levels of safety, connection, and coping at intake and discharge to determine if meaningful changes occurred in these concepts during their time in the facilities. During standard intake procedures, youth complete a battery of assessments on paper, such as the Residential Positive Achievement Change Tool (R-PACT;

Hay et al., 2018). Youth also attend meetings with staff in preparation for discharge from facilities, and during this time the measures could be re-administered. By administering the assessments on paper at intake and discharge, researchers could collect longitudinal data and assess how adolescents change throughout their time in the facility. This, in turn, could provide more evidence for the usage of trauma-informed care within JJ facilities, thus deepening the field's understanding of the mechanism of change behind trauma-informed care.

The current study evaluated the effect of a model of trauma-informed care on adolescents' behavior within JJ facilities. However, to date, no research has evaluated how experiencing a model of trauma-informed care in a JJ facility affects youths' behavior after reentry, or when they are discharged from the facility. Thus, future research should determine if experiencing trauma-informed care affects recidivism, or re-offending. As discussed earlier, a greater number of ACEs are associated with future offending and less time to recidivation (K. T. Wolff et al., 2017). The primary goal of JJ is to rehabilitate youth and prevent future offending; therefore, determining if trauma-informed care reduces recidivism, or increases the time to recidivation, could provide additional support for the usage of trauma-informed care within JJ facilities.

The constructs measured within the study could also represent a limitation of the findings. For the purposes of the current study, the construct of safety may not have fully reflected the nuances of safety as described within the Three Pillars of TraumaWise Care (Bath, 2015). The proxy used for safety within the current study was "perceived dangerousness," or feelings of unsafety. The converse of this may not accurately reflect the trauma-informed view of safety. As participants in the qualitative interviews said, safety must be felt. Safety is not merely knowing that no threat is present; it is a profound feeling and experience of security. In the realm

of TBRI, the intervention the Texas Model draws from, strategies to increase the felt safety of a child include developing a predictable routine, ensuring their physical needs (e.g., hunger, thirst) are met, providing opportunities for child to develop a sense of appropriate control, and through calming, predictable actions with caregivers (Purvis & Cross, 2007). In light of this, the absence of perceived danger does not fully encompass the concept of safety as conceptualized within this study. Similarly, rather than measuring the juveniles' difficulties coping, their usage of healthy regulatory strategies should be measured. Additionally, many juveniles with histories of trauma have difficulties identifying emotions and may also struggle to identify coping strategies or what behaviors they engage in when they experience strong emotions. Therefore, the youth in the current study may not have fully understood the questions surrounding difficulties coping, as the questions refer to how they behave when they feel a certain way. As such, future studies should investigate utilizing specialized measures of the Pillars of TraumaWise Care in order to more accurately describe their effects and consider including an assessment of youths' ability to identify their own emotions.

Finally, the historical effects of the COVID-19 pandemic may influence the generalizability of the current study. The field of JJ was largely impacted by the pandemic. The disease spread rapidly throughout facilities across the United States, forcing units and entire facilities to enforce strict quarantines and lockdowns. Moreover, many facilities had to ban familial visitation, furloughs, and enrichment activities to prevent the spread of COVID-19, further isolating adolescents from their families and the outside world. Within the field of JJ, a staffing crisis also occurred with many direct care staff leaving the field altogether. This high turnover heightened the burden and stress placed upon staff who remained at the facilities (Buchanan et al., 2020). Each of these factors could have contributed to youths' feelings of

unsafety, connection, and difficulties coping, which could have affected the data collected during Waves 2, 3, and 4. While COVID-19 precautions may remain within JJ facilities indefinitely, the restrictions introduced by the pandemic have eased. Therefore, research on the usage of the Texas Model with these JJ facilities should be replicated to determine if the pandemic unduly affected the observed results.

Implications for JJ Facilities

The findings from the current study carry feasible and practical implications for JJ staff and policy makers. In addition to supporting previous research on how ACEs influence behavior, the results from this study demonstrate the positive effects a facility-wide model of trauma-informed care can have on youth behavior within JJ facilities. Assaults on staff or peers within the facility are among the most serious in-facility rule violations a juvenile can commit, as they have the potential to seriously harm individuals, majorly disrupt the facility, and place entire units into dangerous situations. Therefore, a reduction in these events could improve functioning within the facility and increase the well-being of staff and youth. In addition to its efficaciousness, implementing the principles of trauma-informed care are relatively cost-effective. While educating staff on its principles is necessary for usage, no certification or specialized degree is required to use the tenants of trauma-informed care. Thus, both the implementation and usage of trauma-informed models of care are feasible for both JJ staff and policy makers.

This study also revealed the profound impact youths' feelings of safety can have on their behavior within the facility. The quantitative results and qualitative interviews confirmed the importance of safety, particularly within a JJ setting. With this in mind, JJ staff could introduce strategies to increase adolescents' feelings of safety as early on as intake at facilities. This is

evidenced by the qualitative feedback elicited from clinicians. Independently of one another, three of the four participants cited intake as an opportunity to establish and enhance youths' feelings of safety. The participants recommended a variety of strategies that could be used to do so. These strategies ranged from providing simple explanations (e.g., giving youth an overview of the intake process and what happens at each stage) and emphasizing rules and policies that are in place to protect youth (e.g., reassuring youth that they would have access to food and water throughout the day), to more complex (e.g., utilizing a comfortable room and asking youth specifically how staff can help them feel safe). With regards to TJJD facilities in particular, one participant requested that having Texas Model Mentors become more involved in the intake process and previewing the Texas Model with youth could also increase feelings of safety. Placing an emphasis on developing adolescents' feelings of safety could improve their in-facility behavior further, which could then increase the progress youth are able to make while in JJ facilities. Thus, these feasible recommendations could prove to be impactful to both staff and youth within the secure, residential JJ facilities.

Conclusion

This study evaluated the effect of implementing a trauma-informed model of care within JJ facilities and explored how trauma-informed care affects adolescents' behavior. Results from the present study emphasize the benefits of trauma-informed care for all JJ-involved youth, regardless of their unique trauma histories. In addition, youths' feelings of unsafety were shown to positively affect the number of assaults committed while in the facility, highlighting the importance of creating a feeling of safety within a JJ environment. These results suggest that the usage of a facility-wide, trauma-informed model of care could benefit all youth residing in secure JJ facilities; by doing so, JJ staff could increase youths' feelings of safety, which could

lead to meaningful improvements in behavior, thus setting youth on a more positive trajectory during and after their time in the facilities.

REFERENCES

- Abram, K. M., Teplin, L. A., Charles, D. R., Longworth, S. L., McClelland, G. M., & Dulcan, M. K. (2004). Posttraumatic stress disorder and trauma in youth in juvenile detention. *Archives of General Psychiatry*, *61*(4), 403–410. doi:10.1001/archpsyc.61.4.403
- Aiken, L. S., & West, Stephen G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Alhowaymel, F., Kalmakis, K., & Jacelon, C. (2021). Developing the concept of adverse childhood experiences: A global perspective. *Journal of Pediatric Nursing*, *56*, 18–23. <https://doi.org/10.1016/j.pedn.2020.10.004>
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition). American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Baetz, C. L., Surko, M., Moaveni, M., McNair, F., Bart, A., Workman, S., Tedeschi, F., Havens, J., Guo, F., Quinlan, C., & Horwitz, S. M. (2021). Impact of a trauma-informed intervention for youth and staff on rates of violence in juvenile detention settings. *Journal of Interpersonal Violence*, *36*(17–18), NP9463–NP9482. <https://doi.org/10.1177/0886260519857163>
- Baglivio, M. T., Epps, N., Swartz, K., Huq, M. S., Sheer, A., & Hardt, N. S. (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice*, *3*(2), 1-23.
- Baglivio, M. T., Wolff, K. T., Piquero, A. R., & Epps, N. (2015). The relationship between adverse childhood experiences (ACE) and juvenile offending trajectories in a juvenile

- offender sample. *Journal of Criminal Justice*, 43(3), 229–241.
<https://doi.org/10.1016/j.jcrimjus.2015.04.012>
- Baker, C. N., Brown, S. M., Wilcox, P. D., Overstreet, S., & Arora, P. (2016). Development and psychometric evaluation of the attitudes related to trauma-informed care (ARTIC) scale. *School Mental Health*, 8, 61–76. <https://doi.org/10.1007/s12310-015-9161-0>
- Baldwin, D. V. (2013). Primitive mechanisms of trauma response: An evolutionary perspective on trauma-related disorders. *Neuroscience & Biobehavioral Reviews*, 37(8), 1549–1566.
<https://doi.org/10.1016/j.neubiorev.2013.06.004>
- Basanta, J. L., Fariña, F., & Arce, R. (2018). Risk-need-responsivity model: Contrasting criminogenic and noncriminogenic needs in high and low risk juvenile offenders. *Children and Youth Services Review*, 85, 137–142.
<https://doi.org/10.1016/j.childyouth.2017.12.024>
- Bath, H. (2015). The three pillars of traumawise care: Healing in the other 23 hours. *Reclaiming Children and Youth*, 23(4), 5.
- Best, D., & Laudet, A. (2010). The potential of recovery capital. *London: RSA*.
- Bonta, J., & Andrews, D. A. (2007). Risk-need-responsivity model for offender assessment and rehabilitation. *Rehabilitation*, 6(1), 1–22.
- Bonta, J., Wallace-Capretta, S., & Rooney, J. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior*, 27(3), 312–329. <https://doi.org/10.1177/0093854800027003003>
- Bowlby, J. (1979). The Bowlby-Ainsworth attachment theory. *Behavioral and Brain Sciences*, 2(4), 637–638. <https://doi.org/10.1017/S0140525X00064955>

- Brogan, L., Haney-Caron, E., NeMoyer, A., & DeMatteo, D. (2015). Applying the risk-needs-responsivity (RNR) model to juvenile justice. *Criminal Justice Review*, *40*(3), 277–302. <https://doi.org/10.1177/0734016814567312>
- Buchanan, M., Castro, E. D., Kushner, M., & Krohn, M. D. (2020). It's F** ing Chaos: COVID-19's impact on juvenile delinquency and juvenile justice. *American Journal of Criminal Justice*, *45*, 578–600. <https://doi.org/10.1007/s12103-020-09549-x>
- Buhler-Wassmann, A. C., & Hibel, L. C. (2021). Studying caregiver-infant co-regulation in dynamic, diverse cultural contexts: A call to action. *Infant Behavior and Development*, *64*, 101586. <https://doi.org/10.1016/j.infbeh.2021.101586>
- Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse & Neglect*, *35*(6), 408–413. <https://doi.org/10.1016/j.chiabu.2011.02.006>
- Burrell, S. (2013). *Trauma and the environment of care in juvenile institutions*. National Child Traumatic Stress Network. Retrieved from http://www.nctsn.org/sites/default/files/assets/pdfs/jj_trauma_brief_envirnofcare_burrell_final.pdf
- Chapple, C. L., Pierce, H., & Jones, M. S. (2021). Gender, adverse childhood experiences, and the development of self-control. *Journal of Criminal Justice*, *74*, 101811. <https://doi.org/10.1016/j.jcrimjus.2021.101811>
- Clark, A. B. (2017). Juvenile solitary confinement as a form of child abuse. *The Journal of the American Academy of Psychiatry and the Law*, *45*(3).

- Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. M. (1985). Measuring the functional components of social support. *Social support: Theory, research and applications* 73–94. https://doi.org/10.1007/978-94-009-5115-0_5
- Cook, A., Spinazzola, J., Blaustein, M., Cloitre, M., DeRosa, R., Hubbard, R., Kagan, R., Liautaud, J., Mallah, K., Olafson, E., & van der Kolk, B. (2005). Complex Trauma. *Psychiatric Annals*, 35(5), 390-398. <https://doi.org/10.3928/00485713-20050501-05>
- Crawley, R. D., Rázuri, E. B., Lee, C., & Mercado, S. (2021). Lessons from the field: Implementing a Trust-Based Relational Intervention (TBRI) pilot program in a child welfare system. *Journal of Public Child Welfare*, 15(3), 275–298. <https://doi.org/10.1080/15548732.2020.1717714>
- Crouch, E., Radcliff, E., Hung, P., & Bennett, K. (2019). Challenges to school success and the role of adverse childhood experiences. *Academic Pediatrics*, 19(8), 899–907. <https://doi.org/10.1016/j.acap.2019.08.006>
- Crouch, E., Radcliff, E., Strompolis, M., & Srivastav, A. (2019). Safe, stable, and nurtured: protective factors against poor physical and mental health outcomes following exposure to adverse childhood experiences (ACEs). *Journal of Child & Adolescent Trauma*, 12(2), 165–173. <https://doi.org/10.1007/s40653-018-0217-9>
- Dierkhising, C. B., Ko, S. J., Woods-Jaeger, B., Briggs, E. C., Lee, R., & Pynoos, R. S. (2013). Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network. *European Journal of Psychotraumatology*, 4(1), 20274. <https://doi.org/10.3402/ejpt.v4i0.20274>

- Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). Adolescent violence perpetration: Associations with multiple types of adverse childhood experiences. *Pediatrics, 125*(4), e778–e786. <https://doi.org/10.1542/peds.2009-0597>
- Efta-Breitbach, J., & Freeman, K. A. (2004). Recidivism and resilience in juvenile sexual offenders: An analysis of the literature. *Journal of Child Sexual Abuse, 13*(3–4), 257–279. https://doi.org/10.1300/J070v13n03_13
- Farahnak, L. R., Ehrhart, M. G., Torres, E. M., & Aarons, G. A. (2020). The influence of transformational leadership and leader attitudes on subordinate attitudes and implementation success. *Journal of Leadership & Organizational Studies, 27*(1), 98–111. <https://doi.org/10.1177/1548051818824529>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The diverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245–258. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)
- Field, A. (2015). *Discovering Statistics Using IBM SPSS Statistics*. SAGE.
- Fox, B. H., Perez, N., Cass, E., Baglivio, M. T., & Epps, N. (2015). Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse & Neglect, 46*, 163–173. <https://doi.org/10.1016/j.chiabu.2015.01.011>
- Goldstein, E., Topitzes, J., Miller-Cribbs, J., & Brown, R. L. (2021). Influence of race/ethnicity and income on the link between adverse childhood experiences and child flourishing. *Pediatric Research, 89*(7), 1861–1869. <https://doi.org/10.1038/s41390-020-01188-6>

- Goshe, S. (2019). How contemporary rehabilitation fails youth and sabotages the American juvenile justice system: A critique and call for change. *Critical Criminology*, 27(4), 559–573. <https://doi.org/10.1007/s10612-019-09473-5>
- Gray, M., Joy, E., Plath, D., & Webb, S. A. (2014). Opinions about evidence: A study of social workers' attitudes towards evidence-based practice. *Journal of Social Work*, 14(1), 23–40. <https://doi.org/10.1177/1468017313475555>
- Hadi, A. S., & Simonoff, J. S. (1993). Procedures for the identification of multiple outliers in linear models. *Journal of the American Statistical Association*, 88(424), 1264–1272. <https://doi.org/10.1080/01621459.1993.10476407>
- Hales, T. W., Green, S. A., Bissonette, S., Warden, A., Diebold, J., Koury, S. P., & Nochajski, T. H. (2019). Trauma-informed care outcome study. *Research on Social Work Practice*, 29(5), 529–539. <https://doi.org/10.1177/1049731518766618>
- Halfon, N., Larson, K., Son, J., Lu, M., & Bethell, C. (2017). Income inequality and the differential effect of adverse childhood experiences in US children. *Academic Pediatrics*, 17(7, Supplement), S70–S78. <https://doi.org/10.1016/j.acap.2016.11.007>
- Hay, C., Widdowson, A. O., Bates, M., Baglivio, M. T., Jackowski, K., & Greenwald, M. A. (2018). Predicting recidivism among released juvenile offenders in Florida: An evaluation of the residential positive achievement change tool. *Youth Violence and Juvenile Justice*, 16(1), 97–116. <https://doi.org/10.1177/1541204016660161>
- Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach*. Guilford Publications.

- Hennessy, E. A. (2017). Recovery capital: A systematic review of the literature. *Addiction Research & Theory, 25*(5), 349–360. <https://doi.org/10.1080/16066359.2017.1297990>
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356–e366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4)
- Joe, G. W., Becan, J. E., Knight, D. K., & Flynn, P. M. (2017). A structural model of treatment program and individual counselor leadership in innovation transfer. *BMC Health Services Research, 17*, 1–11. <https://doi.org/10.1186/s12913-017-2170-y>
- Kaufman, E. A., Xia, M., Fosco, G., Yaptangco, M., Skidmore, C. R., & Crowell, S. E. (2016). The Difficulties in Emotion Regulation Scale Short Form (DERS-SF): Validation and replication in adolescent and adult samples. *Journal of Psychopathology and Behavioral Assessment, 38*(3), 443–455. <https://doi.org/10.1007/s10862-015-9529-3>
- King, A. R. (2021). The ACE questionnaire and lifetime physical aggression. *Journal of Aggression, Maltreatment & Trauma, 30*(2), 243–260. <https://doi.org/10.1080/10926771.2020.1796875>
- Knight, D. K., Yang, Y., Joseph, E. D., Tinius, E., Young, S., Shelley, L. T., Cross, D. R., & Knight, K. (2021). Preventing opioid use among justice-involved youth as they transition to adulthood: Leveraging safe adults (LeSA). *BMC Public Health, 21*(1), 1–17. <https://doi.org/10.1186/s12889-021-12127-3>
- Ko, S. J., Ford, J. D., Kassam-Adams, N., Berkowitz, S. J., Wilson, C., Wong, M., Brymer, M. J., & Layne, C. M. (2008). Creating trauma-informed systems: Child welfare, education,

- first responders, health care, juvenile justice. *Professional Psychology: Research and Practice*, 39(4), 396. <https://doi.org/10.1037/0735-7028.39.4.396>
- LaBrenz, C. A., O’Gara, J. L., Panisch, L. S., Baiden, P., & Larkin, H. (2020). Adverse childhood experiences and mental and physical health disparities: The moderating effect of race and implications for social work. *Social Work in Health Care*, 59(8), 588–614. <https://doi.org/10.1080/00981389.2020.1823547>
- Lawson, D. M., & Quinn, J. (2013). Complex trauma in children and adolescents: Evidence-based practice in clinical settings. *Journal of Clinical Psychology*, 69(5), 497–509. <https://doi.org/10.1002/jclp.21990>
- Levenson, J. (2017). Trauma-informed social work practice. *Social Work*, 62(2), 105–113. <https://doi.org/10.1093/sw/swx001>
- Lobo, F. M., & Lunkenheimer, E. (2020). Understanding the parent-child coregulation patterns shaping child self-regulation. *Developmental Psychology*, 56(6), 1121-1134. <https://doi.org/10.1037/dev0000926>
- Marrow, M. T., Knudsen, K. J., Olafson, E., & Bucher, S. E. (2012). The value of implementing TARGET within a trauma-informed juvenile justice setting. *Journal of Child & Adolescent Trauma*, 5(3), 257–270. <https://doi.org/10.1080/19361521.2012.697105>
- May, C. L., & Wisco, B. E. (2016). Defining trauma: How level of exposure and proximity affect risk for posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy*, 8(2), 233–240. <https://doi.org/10.1037/tra0000077>
- McRae, E. M., Stoppelbein, L., O’Kelley, S. E., Fite, P., & Smith, S. B. (2021). An examination of post-traumatic stress symptoms and aggression among children with a history of

- adverse childhood experiences. *Journal of Psychopathology and Behavioral Assessment*, 43, 657–670. <https://doi.org/10.1007/s10862-021-09884-1>
- Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., & Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health. *Child Abuse & Neglect*, 69, 10–19. <https://doi.org/10.1016/j.chiabu.2017.03.016>
- Mersky, J. P., Choi, C., Plummer Lee, C., & Janczewski, C. E. (2021). Disparities in adverse childhood experiences by race/ethnicity, gender, and economic status: Intersectional analysis of a nationally representative sample. *Child Abuse & Neglect*, 117, 105066. <https://doi.org/10.1016/j.chiabu.2021.105066>
- Mills, D. L. (1995). United States v. Johnson: Acknowledging the shift in the juvenile court system from rehabilitation to punishment. *DePaul L. Rev.*, 45, 903.
- Monahan, K., Steinberg, L., & Piquero, A. R. (2015). Juvenile justice policy and practice: A developmental perspective. *Crime and Justice*, 44(1), 577–619. <https://doi.org/10.1086/681553>
- Mumford, E. A., Taylor, B. G., Berg, M., Liu, W., & Miesfeld, N. (2019). The social anatomy of adverse childhood experiences and aggression in a representative sample of young adults in the US. *Child Abuse & Neglect*, 88, 15–27. <https://doi.org/10.1016/j.chiabu.2018.10.016>
- Myers, R. H. (1990). *Detecting and combating multicollinearity. Classical and Modern Regression with Applications*, 368-423. Duxbury Press Belmont, CA.
- National Center for Health Statistics. (2021). Vintage 2020 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2020), by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin,

- and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau.
Available online from https://www.cdc.gov/nchs/nvss/bridged_race.htm
- Panorama Education. (2015). Validity brief: Panorama student survey. Retrieved from:
<https://panorama-www.s3.amazonaws.com/files/panorama-student-survey/validity-brief.pdf>
- Parris, S. R., Dozier, M., Purvis, K. B., Whitney, C., Grisham, A., & Cross, D. R. (2015).
Implementing trust-based relational intervention® in a charter school at a residential
facility for at-risk youth. *Contemporary School Psychology, 19*(3), 157–164.
<https://doi.org/10.1007/s40688-014-0033-7>
- Pierce, H., Jones, M. S., & Holcombe, E. A. (2022). Early adverse childhood experiences and
social skills among youth in fragile families. *Journal of Youth and Adolescence, 51*(8),
1497–1510. <https://doi.org/10.1007/s10964-022-01607-3>
- Purvis, K. B., Cross, D. R., & Sunshine, W. L. (2007). Disarming the fear response with felt
safety. *KB Purvis, DR Cross, DR, WL & Sunshine (Eds). The connected child: Bring
hope and healing to your adopted family, 47-72.* Purvis, K. B., Cross, D. R., Dansereau,
D. F., & Parris, S. R. (2013). Trust-based relational intervention (TBRI): A systemic
approach to complex developmental trauma. *Child & Youth Services, 34*(4), 360–386.
<https://doi.org/10.1080/0145935X.2013.859906>
- Purvis, K. B., Cross, D. R., Federici, R., Johnson, D., & McKenzie, L. B. (2007). The hope
connection: A therapeutic summer day camp for adopted and at-risk children with special
socio-emotional needs. *Adoption & Fostering, 31*(4), 38–48.
<https://doi.org/10.1177/03085759070310040>

- Purvis, K. B., Razuri, E. B., Howard, A. R. H., Call, C. D., DeLuna, J. H., Hall, J. S., & Cross, D. R. (2015). Decrease in behavioral problems and trauma symptoms among at-risk adopted children following trauma-informed parent training intervention. *Journal of Child & Adolescent Trauma*, 8(3), 201–210. <https://doi.org/10.1007/s40653-015-0055-y>
- Raja, S., Hasnain, M., Hoersch, M., Gove-Yin, S., & Rajagopalan, C. (2015). Trauma informed care in medicine. *Family & Community Health*, 38(3), 216–226. <https://doi.org/10.1097/FCH.0000000000000071>
- Reid, M. J., Proctor, A. M., & Brooks, T. R. (2018). The early promise of TBRI implementation in schools. *School Leadership Review*, 13(2), 2.
- Rosenberg, L. (2011). Addressing trauma in mental health and substance use treatment. *The Journal of Behavioral Health Services & Research*, 38(4), 428–431. <https://doi.org/10.1007/s11414-011-9256-9>
- Rosenthal, R., & Rosnow, R. L. (1985). *Contrast analysis: Focused comparisons in the analysis of variance* (Vol. 107). Cambridge: Cambridge University Press .
- Ryan, J. P., & Yang, H. (2005). Family contact and recidivism: A longitudinal study of adjudicated delinquents in residential care. *Social Work Research*, 29(1), 31–39. <https://doi.org/10.1093/swr/29.1.31>
- Scully, C., McLaughlin, J., & Fitzgerald, A. (2020). The relationship between adverse childhood experiences, family functioning, and mental health problems among children and adolescents: A systematic review. *Journal of Family Therapy*, 42(2), 291–316. <https://doi.org/10.1111/1467-6427.12263>

- Shin, S. H., McDonald, S. E., & Conley, D. (2018). Profiles of adverse childhood experiences and impulsivity. *Child Abuse & Neglect*, *85*, 118–126.
<https://doi.org/10.1016/j.chiabu.2018.07.028>
- Smoot, N. (2019). The Juvenile Justice Reform Act of 2018: Updating the Federal Approach to Youth Involved, and At-Risk of Becoming Involved, in the Juvenile Justice System. *Juvenile and Family Court Journal*, *70*(3), 45–60. <https://doi.org/10.1111/jfcj.12145>
- Spinazzola, J., Ford, J. D., Zucker, M., van der Kolk, B. A., Silva, S., Smith, S. F., & Blaustein, M. (2005). Survey evaluates: Complex trauma exposure, outcome, and intervention among children and adolescents. *Psychiatric Annals*, *35*(5), 433–439.
<https://doi.org/10.3928/00485713-20050501-09>
- Testa, A., Jackson, D. B., Ganson, K. T., & Nagata, J. M. (2022). Adverse childhood experiences and criminal justice contact in adulthood. *Academic Pediatrics*, *22*(6), 972–980.
<https://doi.org/10.1016/j.acap.2021.10.011>
- Texas Juvenile Justice Department. (2020). *Texas Model Plan for Reform*.
<https://www.tjjd.texas.gov/index.php/doc-library/send/633-texas-model/2512-the-texas-model-plan-for-reform>
- Thomas, M. S., Crosby, S., & Vanderhaar, J. (2019). Trauma-informed practices in schools across two decades: An interdisciplinary review of research. *Review of Research in Education*, *43*(1), 422–452. <https://doi.org/10.3102/0091732X18821123>
- Van der Kolk, B. A. (2002). The assessment and treatment of complex PTSD. *Treating Trauma Survivors with PTSD*, *127*, 156.
- Van der Kolk, B. A., & Courtois, C. A. (2005). Editorial comments: Complex developmental trauma.

- Wamser-Nanney R., & Vandenberg B. R. (2013). Empirical support for the definition of a complex trauma event in children and adolescents. *Journal of Traumatic Stress, 26*(6), 671–678. <https://doi.org/10.1002/jts.21857>
- Wolff, K. T., Baglivio, M. T., & Piquero, A. R. (2017). The relationship between adverse childhood experiences and recidivism in a sample of juvenile offenders in community-based treatment. *International Journal of Offender Therapy and Comparative Criminology, 61*(11), 1210–1242. <https://doi.org/10.1177/0306624X15613992>
- Wolff, N., & Caravaca Sánchez, F. (2019). Associations among psychological distress, adverse childhood experiences, social support, and resilience in incarcerated men. *Criminal Justice and Behavior, 46*(11), 1630–1649. <https://doi.org/10.1177/0093854819876008>
- Yohros, A. (2022). Examining the relationship between adverse childhood experiences and juvenile recidivism: A systematic review and meta-analysis. *Trauma, Violence, & Abuse, 15*248380211073846. <https://doi.org/10.1177/15248380211073846>
- Zettler, H. R. (2021). Much to do about trauma: A systematic review of existing trauma-informed treatments on youth violence and recidivism. *Youth Violence and Juvenile Justice, 19*(1), 113–134. <https://doi.org/10.1177/1541204020939645>

VITA

Personal
Background Elizabeth Dianne Joseph
Born December 27, 1996, Lake Charles, Louisiana
Daughter of Dr. Jeffrey John Joseph and Dr. Susan Elizabeth Drez
Fiancée of David William Gaines

Education Bachelor of Science, Psychology, Louisiana State University
Baton Rouge, Louisiana, 2019
Master of Science, Experimental Psychology, Texas Christian University
Fort Worth, Texas, 2021

Experience Research Assistant, Pennington Biomedical Research Center,
Pediatric Obesity Lab, Baton Rouge, Louisiana, 2017-2019
Graduate Research Assistant, Texas Christian University,
Institute of Behavioral Research, Fort Worth, Texas, 2019-present
Teaching Assistant, Texas Christian University,
Trauma and Relationships, Trauma and Behavior, Fort Worth,
Texas, 2021-2022
Instructor, Texas Christian University,
Child Psychology, Fort Worth, Texas, present

ABSTRACT

A TRAUMA-INFORMED MODEL OF CARE IN TEXAS JUVENILE JUSTICE FACILITIES: EVALUATION AND IMPLICATIONS

by Elizabeth Dianne Joseph, M.S., 2023
Department of Psychology
Texas Christian University

Dissertation Advisor: Kevin Knight, Director of Institute of Behavioral Research

This study evaluated whether experiencing a trauma-informed model of care within a juvenile justice (JJ) setting predicted behavioral noncompliance within secure, residential facilities. Based on Bath's Pillars of TraumaWise Care, measures of safety, connection, and coping were used to predict behavioral noncompliance as influenced by adolescents' experience of a model of trauma-informed care. Additionally, feedback from JJ staff and interventionists was collected to aid in the interpretation of the results. The results from the study indicated that adverse childhood experiences (ACEs) were positively associated with in-facility assaults, while exposure to the Texas Model was negatively associated with assaults. Further analyses indicated that exposure to the Texas Model predicted less assaults amongst all youth, regardless of their number of ACEs. Adolescents' feelings of unsafety were found to mediate the relationship between ACEs and assaults, and youth who experienced the Texas Model felt greater safety at low, average, and high levels of ACEs. The interviews conducted with JJ staff and trauma-informed interventionists supported the quantitative results. The findings from this study can be used to inform the field's current understanding of trauma-informed care on in-facility behavior and implications for usage within a JJ setting.