

Much to Do About Trauma: A Systematic Review of Existing Trauma-Informed Treatments on Youth Violence and Recidivism

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Abstract

Research has demonstrated a relationship between childhood trauma, violence, and justice involvement. As juvenile justice systems have become more attune to the needs of traumatized youth, a number of trauma-informed treatment programs have been developed to mitigate the effects of trauma. Evaluations of trauma-informed treatment demonstrate their effectiveness in reducing trauma-related symptoms. Further, prior research has found that trauma-informed treatment can reduce behavioral infractions and institutional violence. While there is indirect evidence that trauma-informed treatment reduces juvenile violence and recidivism, no research to date has assessed trauma-informed treatment on behavioral outcomes outside of residential facilities. This systematic review provides an overview of the use trauma-informed treatment in juvenile justice settings and provides recommendations for practice and future research.

Keywords

trauma, trauma-informed, violence, adverse childhood experiences

Introduction

A wealth of research has established the high prevalence of trauma histories in justice-involved youth samples (Abram et al., 2004; Dierkhising et al., 2013; Ford et al., 2007, 2008, 2013). A study utilizing the National Child Traumatic Stress Network Core Data Set (NCTSN-CDS) to examine trauma histories for justice involved youth, reported that 90% of youth experienced at least one traumatic childhood event, and the majority of their sample (62%) reported multiple types of

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co-occurring trauma (Dierkhising et al., 2013). Additionally, it is estimated that 30% of justice-involved American youth meet the criteria for Post-Traumatic Stress Disorder (PTSD) due to traumatic events in their childhood (Dierkhising et al., 2013). Trauma exposure is an established risk factor for justice involvement, violent offending in adolescence, and contact with the adult criminal justice system (Ford et al., 2006; Kerig & Becker, 2010). Increased attention to the needs of juveniles with trauma histories had led to development of trauma-informed systems of care (Branson et al., 2017; Kusmaul et al., 2015), calling on juvenile justice agencies to emphasize youths' strengths, feelings of security, and self-regulation (Griffin et al., 2012).

Although there has been a recent shift toward trauma-informed care, juvenile justice systems have not consistently developed strategies to treat trauma (Ford et al., 2007). Juvenile justice agencies have begun to assist traumatized youth through the use of screening instruments, clinical assessments, and referrals to trauma-informed treatment. While there is indirect evidence that trauma-informed therapies can potentially reduce violence through their effectiveness in reducing PTSD and other psychosocial symptoms (Black et al., 2012; Silverman et al., 2008), there is little research to date examining the efficacy of trauma-informed treatment in reducing violence and recidivism. Preliminary research on such programs find that trauma-informed treatment in residential facilities may reduce violent incidents (Baetz et al., 2019). This systematic review summarizes prior investigations of the relationship between trauma, violence and delinquency, describes the theoretical frameworks of trauma and violence, and assesses the state of research evaluating the impact of trauma-informed treatment.

Trauma, Violence, and Delinquency

A number of studies have found that juveniles who commit violent offenses are more likely to report extensive trauma histories. For example, juveniles remanded to the Office of Children and Family Services in New York for violent crimes (e.g. assault, sexual assault, robbery, homicide) reported an average of 8.57 traumatic life events for these youth (Crimmins et al., 2000). Further, youth who were remanded for homicide were twice as likely to have witnessed a homicide themselves, and three times more likely to have witnessed a shooting or stabbing in their home. Exploring the role of childhood trauma and adolescent dating violence, Wolfe and colleagues (2004) found that trauma-related symptoms predicted dating violence perpetration. In a sample of 66 detained male delinquents, 86% reported experiencing a traumatic event and 71% reported multiple types of trauma (Stimmel et al., 2014).

Investigations of the effects of adverse childhood experiences (ACEs) on juvenile delinquency demonstrate that traumatic events in childhood are linked to an increased risk of serious, persistent, and chronic offending in adolescence and throughout the life course (Baglivio et al., 2014a, 2015; Barrett et al., 2013; Craig et al., 2017; Wolff et al., 2017). Baglivio and Epps (2016) noted the interrelatedness of ACEs, finding that 67.5% of youth reporting once ACE reported an additional four or more ACEs. This line of inquiry has also highlighted the cumulative effect of trauma, finding that for every additional ACE a child experiences increases the risk of being residentially committed as a juvenile (Zettler et al., 2018) and becoming a chronic and violent offender by adulthood (Fox et al., 2015).

Several studies highlight both the indirect and direct effects of ACEs on juvenile recidivism. In a study exploring the pathways that ACEs impact juvenile recidivism, the authors found that ACEs had both a direct and indirect effect on recidivism, with a large proportion of the effect on recidivism operating through negative emotionality (e.g. tolerance for frustration, hostile interpretation, dealing with emotions, and anxiety/depression; Wolff & Baglivio, 2017). Similarly, an analysis of the offending trajectories revealed that a large proportion of the relationship between ACEs and serious, violent, chronic delinquency is mediated by personality traits and problem behaviors (Perez et al., 2018). An examination of the potentially mediating effects of substance use and mental health problems reported that current drug and alcohol use, mental health problems, and their co-occurrence partially mediated

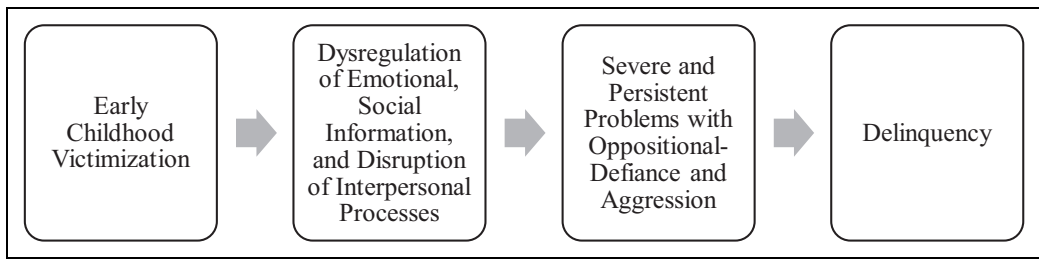


Figure 1. Pathway from childhood trauma to delinquency.

the ACEs-recidivism relationship (Craig et al., 2019). Using a large, diverse sample of nearly 13,000 youth in residential programs, Baglivio and colleagues (2016) found that while ACEs failed to have a direct effect on recidivism, ACEs had an indirect effect on recidivism through their impact on child welfare involvement.

Prior research has investigated the relationship between ACEs and violent offending among juveniles. Duke and colleagues (2010) found that ACEs were significantly associated with adolescent interpersonal violence and self-directed violence, with every additional ACE increasing the risk of violence from 35% to 144%. Utilizing a sample of school-aged children, Crooks and colleagues (2007) reported that exposure to child maltreatment predicted violent delinquency, although the effects were somewhat attenuated when controlling for participation in school violence prevention programs. Among a sample of confined juvenile males, ACEs were strongly and positively correlated with sexual offending, but negatively associated with homicide and person/property offending (DeLisi et al., 2017). Altogether, prior research on childhood trauma and ACEs illustrate the impact that trauma has on violence perpetration.

There is evidence that a large number of serious delinquent youths have impaired cognitive functioning resulting from early trauma which may be linked to offending behavior, including violence (Baer & Maschi, 2003). Figure 1 provides a chronological pathway from childhood trauma to juvenile delinquency (Ford et al., 2006). This pathway postulates that dysregulation of emotional and social processes mediates the relationship between childhood trauma and aggression. Research on juveniles in secure facilities reports that detained youth often experience complex trauma (i.e. poly-victimization, life-threatening accidents or disasters, and interpersonal losses) which can result in reactive aggression and violence perpetration (Ford et al., 2012). In order to reduce aggression and violence in traumatized youth, it is important that researchers have an in-depth understanding of the complex relationship between trauma and violence.

Theoretical Explanations of Trauma and Violence

Psychosocial research has extensively examined the link between trauma and violent behavior in adolescents. Trauma occurring during childhood may disrupt important aspects of brain and personality development, including self-regulation (Ford, 2002a). One explanation posited by clinical psychologists is that traumatized children have problems in affect regulation and are more likely to label affect as anger rather than fear or sadness (Garrison & Stolberg, 1983). This mislabeling of affect, then results in the underutilization of responses appropriate to sadness and the overutilization of aggression (Ingram & Kendall, 1986). Additionally, abusive families find it more challenging to regulate anger in their children, further perpetuating a cycle of affect dysregulation (Howes et al., 2000). Childhood experiences of abuse are also associated with hyper-reactivity, where children who have experienced violence are on constant lookout for the detection of anger-related signals in order to respond to perceived threats (Pollak et al., 2000).

Research has distinguished the effects of complex trauma (e.g. experiencing multiple or chronic, prolonged traumatic events) on persistent problems across a number of psychosocial domains including self-regulation (Cook et al., 2003). When adolescents experience complex trauma, they often operate in a constant state of hypervigilance, where they scan their environment for threats and exhibit an abnormally elevated physiological arousal and responsiveness to stimuli (Buffington et al., 2010). Thus, hypervigilant adolescents are more likely to view people and situations as threats and react with aggression and violence. A number of theoretical models have been proposed to explain the relationship between trauma and violence fall under four categories: emotional processes, cognitive processes, interpersonal processes, and integrative processes (Kerig & Becker, 2010).

Dysregulation of emotional processing. The relationship between trauma and violent behavior may partially explained by *emotional dysregulation*, which is a central feature of both Post-Traumatic Stress Disorder (PTSD) and delinquency (Ford, 2002b; Ford et al., 2006). Childhood trauma may interfere with the ability to regulate affect, the adaptation of healthy coping mechanisms, and impulse control, which are all predictive of delinquent behaviors including violence (van der Kolk & Fisler, 1994). Pappagallo and colleagues (2004) note that this dysregulation resulting from PTSD might contribute to adolescent violence through impulsivity and irritability.

Early childhood trauma also has biological effects on emotional regulation, through its impact on cortisol levels and hypothalamic-pituitary-adrenal (HPA) axis dysregulation (De Bellis & Zisk, 2014). Dysregulation of the HPA axis can develop after repeated exposure to psychological stressors, thus maltreated children may have difficulty responding in appropriate, prosocial ways to stressors (Doom et al., 2014). Further, children who experience multiple traumatic events or severe abuse are more likely to have elevated cortisol levels (Cicchetti & Rogosch, 2001). Using a sample of school aged children, Cicchetti and colleagues (2010) found that children who experienced physical and sexual abuse by age 5 were more likely to experience internalizing symptoms and HPA axis dysregulation than those who experienced trauma later in life. A longitudinal examination of childhood trauma and cortisol levels revealed that maltreated children were more likely to exhibit disruptive/aggressive behaviors, which was associated with later cortisol dysregulation (Alink et al., 2012).

Dysregulation of social information processing. Trauma also impacts cognitive development and may result in *dysregulation of social information processing*. Children who witness violence learn that aggression is an acceptable way of solving interpersonal conflict (Bandura, 1972; Dodge et al., 1990). Dodge and colleagues (1995) found that children with abuse histories were more likely than their counterparts to misread social cues, view aggression in a positive way, and utilize aggression in response to interpersonal conflict. In a sample of extremely aggressive delinquent adolescents, Morretti and colleagues (2006) reported that meeting the criteria for PTSD had the strongest relationship between witnessing violence at home and violent perpetration against others. Additionally, delinquent adolescents with trauma histories express positive views of aggression and view violence as a way to better their reputation (Spaccarelli et al., 1995). Shahinfar et al. (2001) found that victimized youth were the most likely to support the use of aggression, misperceive others' behaviors as hostile, and have goals surrounding revenge and dominance. Youth who experience trauma also perceive *stigmatization* surrounding the shame associated with being traumatized. Empirical research concludes that shame is related to aggression, anger, suspicion, resentment, irritability, and externalizing blame (Tangney et al., 1992).

Disruption of interpersonal processes. Trauma is further associated with violence through the *disruption of parent-child relationships*. As noted by Kerig and Becker (2010), trauma during childhood may lead to justice involvement in several ways: directly through an arrest; simultaneously as youth may engage in delinquent activity to escape an abusive environment; indirectly through the disruption of

cognitive, emotional, and interpersonal processes; or afterward by failing to provide the needed emotional support to recover from trauma. Children with unsupportive and emotionally unavailable parents are more likely to develop PTSD and other psychological problems following a traumatic event (Mannarino & Cohen, 1996). Using prospective data from a cohort of documented child abuse and neglect cases, Widom and colleagues (2006) found that childhood trauma had a direct and indirect relationship to violence through both aggression and alcohol use. For females, alcohol use mediated the relationship between childhood trauma and violence, suggesting that early aggression leads to alcohol problems, which subsequently leads to violence (Widom et al., 2006).

Integrative processes. Other research has taken an integrative approach to explore the association between trauma and violence. The *Trauma Coping Model* focuses on both biological and psychological processes resulting from trauma that lead to emotional dysregulation and poor interpersonal conflict resolution which can be seen among delinquent youth (Ford, 2002a, 2006, 2008). This model, argues that trauma leads a youth to feel a loss of integrity and control. As a result, youth may attempt to regain a sense of control in their life and adopt “survival coping” mechanisms where defiance on the outside masks an inner feeling of shame and hopelessness (Ford et al., 2006). However, if the environment does not respond to the youth’s disguised “calls for help,” the youth may feel desperate and adopt any means necessary to defend themselves against the perceived hostile world, a process termed “victim-coping” (Ford et al., 2006).

Research on Trauma-Informed Treatment and Programming

The established link between trauma and negative outcomes including violence has led to the development of a number of trauma-informed treatment modalities and programs for adolescents to mitigate the consequences of trauma. Research on the efficacy of trauma therapies largely report favorable results with regard to reducing trauma and PTSD-related symptoms (Black et al., 2012; Silverman et al., 2008). However, is important to note that while trauma-informed treatment has been extensively utilized in adolescent samples, there is less known about the impact of these treatment modalities in justice-involved youth. The little research that does exist has been limited to the effectiveness of programming in institutional settings. In order to identify the most effective trauma-informed treatments for the larger population of justice-involved youth, a systematic review of trauma-informed treatment programs is warranted.

Cognitive Behavioral Therapies (CBT). The majority of trauma-informed treatment programs used with adolescents are variations of cognitive behavioral therapy (CBT; Black et al., 2012). The primary goal of CBT programs is to change antisocial thinking patterns in order to reduce the negative psychological symptoms associated with trauma (Follette & Ruzek, 2006; Taylor, 2017). Systematic reviews of CBT programs for justice-involved youth report that these interventions are effective at reducing recidivism in both adolescent samples (Aos & Drake, 2013; Lipsey et al., 2007). Specific to juveniles with trauma histories, one meta-analysis reported that these treatments had an overall positive effect on posttraumatic stress, depression, and anxiety symptoms in addition to externalizing behavior problems (Silverman et al., 2008).

Research has demonstrated that CBT programs are effective in reducing violence and recidivism in samples of juvenile offenders (Aos & Drake, 2013). While the evidence supports the use of CBT-based treatments for adolescents, it is necessary to consider the efficacy of these programs specifically for justice-involved youth with trauma histories. Although there are no known evaluations of these programs on reducing juvenile violence directly for this population, these programs may indirectly reduce violence through the reduction of trauma-related symptoms associated with violence. Table 1 provides a summary of CBT-based trauma-informed treatment programs used in adolescent samples.

Table 1. Summary of Cognitive Behavioral Trauma-Informed Programs for Juveniles.

Trauma-Informed Program	Program Components	Evaluations	Cost	Benefits	Limitations
Seeking Safety	Present-focused, coping skills therapy aimed to simultaneously treat trauma-related symptoms and substance use disorders; 25 sessions over 3 months	12 evaluations, 1 study of adolescent girls with trauma histories and substance use disorders; Participants reported reduced PTSD symptoms and negative cognitions related to substance use.	\$526 per participant (adults)	\$18,404 (adults)	One evaluation in adolescent sample, not justice-involved; Effects on recidivism unknown
SITCAP-ART	Comprehensive treatment approach designed to reduce the fear caused by trauma and to facilitate feelings of safety; 10-11 sessions over 8-10 weeks	1 evaluation of adjudicated adolescents; Participants experienced significant reductions in trauma symptoms, depression, rule-breaking behaviors, aggression, and mental health problems.	Unknown	Unknown	One evaluation, Cost/benefits unknown; Effects on recidivism unknown
Cognitive Behavioral Intervention for Trauma in Schools	Child group intervention aimed at reducing trauma symptoms; Used in school settings for children; Average 10 sessions	2 evaluations; Significantly lower scores on PTSD symptoms, depression symptoms, and psychosocial dysfunction.	\$430 per participant	Unknown	Not evaluated in delinquent samples; Benefits unknown
Trauma and Grief Component Therapy for Adolescents (TGCTA)	Four module group intervention focusing on processing 1) foundational knowledge and skills; 2) trauma experiences; 3) grief/loss; 4) resuming adaptive developmental progression and future orientation; 23-25 sessions over 12-26 weeks	4 evaluations, 1 including residentially committed juveniles; TGCTA shown to reduce PTSD, depression and anger symptoms and behavioral infractions in residential facilities.	Unknown	Unknown	Cost/benefits unknown; Not evaluated in community-based samples; Effects on recidivism unknown
Trauma-Focused Cognitive-Behavioral Therapy	Highly structured, parent/child intervention, consisting of 90-minute weekly sessions; Trained clinician guides participant through a series of 9 components; Focuses on psychoeducation, relaxation skills, affective expression, cognitive coping skills, and the use of trauma narratives.	16 RCT evaluations; 2 meta analyses; TF-CBT for adolescents reduces PTSD symptoms, depression symptoms, and behavioral problems; 1 study of adjudicated adolescents.	\$1,037 per participant	\$23,823 per participant	While overall strong support, less is known about effects in justice-involved youth; Effects on recidivism unknown

Research on five variations of CBT programs which have been used for justice-involved youth with trauma histories are further detailed below.

Seeking safety. Seeking Safety is a present-focused therapy that simultaneously treats trauma-related symptoms and substance use disorders in both adults and adolescents (Najavits, 2002). Seeking Safety has five basic principles: (1) personal safety as a priority; (2) integrated treatment; (3) client-needs focus; (4) attention to the therapeutic process; and (5) a focus on cognitions behaviors, interpersonal interactions, and case-management (Najavits et al., 1998). Although originally designed for adult females, Seeking Safety has been adapted for substance-using adolescent females.

Effectiveness. Seeking Safety has primarily been used in female, adult samples. A meta-analysis of the effectiveness of Seeking Safety on reducing PTSD and substance use reported medium effect sizes for decreasing symptoms of PTSD and modest effects for decreasing substance use symptoms (Lenz et al., 2016). In the only randomized-controlled trial of seeking safety for adolescents with co-occurring disorders, Najavits and colleagues (2006) found that participants reported reduced substance use and negative cognitions related to substance use and PTSD

Strengths and limitations. One of the strengths of Seeking Safety is that it was designed to be gender-responsive to the needs of females with co-occurring substance use problems and appears to be successfully adapted for adolescents. However, the program has yet to be evaluated in justice-involved youth and the effects on recidivism are unknown. In an assessment of the program for adults, Seeking Safety was found to be cost-effective with a cost of \$526 and a benefit of \$18,404 per participant (Washington State Institute for Public Policy, 2019a). Further research is needed to fully understand the merit of Seeking Safety in justice-involved juvenile populations

Structured sensory intervention for traumatized children, adolescents, and parents—adjudicated and at-risk youth (SITCAP-ART). A variation of CBT designed specifically for at-risk and adjudicated adolescents is Structured Sensory Intervention for Traumatized Children, Adolescents, and Parents-Adjudicated and At-Risk Youth (SITCAP-ART). SITCAP-ART is a treatment designed to reduce the fear that traumatized individuals experience and to provide feelings of safety (Jacobs & Steele, 2007). SITCAP-ART focuses on sensory-based processing, that emphasizes a shift from a victim to survivor thinking narrative.

Effectiveness. SITCAP-ART has been evaluated in one sample of adjudicated youth. The program consisted of 10-11 sessions depending on the progress participants made in each session, and included seven group sessions, two individual debriefing sessions, and one parent/adolescent session (Raider et al., 2008). A comparison of SITCAP-ART participants to a randomized waitlist-control group found that participants experienced significant reductions in trauma symptoms, depression, rule-breaking behaviors, aggressive behaviors, and mental health problems as measured by the Youth Self Report (Raider et al., 2008)

Strengths and limitations. SITCAP-ART is specifically designed to deliver treatment services to adjudicated adolescents and has been found to be effective for both females and males. However, only one study utilizing a very small sample ($n = 23$) has examined the effectiveness of SITCAP-ART in this population. Although specifically designed for at-risk and justice-involved youth, SITCAP-ART has yet to be evaluated in its efficacy in reducing violence and recidivism. Further, the costs and benefits associated with participation in SITCAP-ART are unknown

Cognitive Behavioral Intervention for Trauma in Schools (CBITS). Cognitive Behavioral Intervention for Trauma in Schools (CBITS) is a variation of CBT that has been adapted to school-based group settings. CBITS was specifically designed to serve inner-city schools and underserved ethnic

minorities. CBITS aims to (1) reduce trauma-related symptoms; (2) foster resilience; and (3) increase peer and parent support (Stein et al., 2003). CBITS is typically delivered in ten child small group sessions (5–8 participants) and adheres to a specific set of curricula.

Effectiveness. A randomized controlled trial of CBITS was conducted in two large middle schools in a primarily Latino community for students who had a significant exposure to violence (Stein et al., 2003). The evaluation found that 86% of CBITS participants reported reductions of PTSD symptoms and 67% reported reductions in depression symptoms at the 3-month follow-up. However, the effects did not hold at 6 months. In order to assess the efficacy of CBITS for ethnic minorities, a second evaluation of CBITS was conducted for immigrant Latino children in nine public schools in Los Angeles, California (Kataoka et al., 2003). Following participation, CBITS participants demonstrated significant improvements in PTSD and depressive symptoms as compared with waitlist controls

Strengths and limitations. One unique feature of CBITS is its specific design for immigrant populations and its application for diverse communities across the United States. However, CBITS has yet to be evaluated in delinquent samples. The cost of CBITS per participant is \$430 (Office of Justice Programs, n.d.), but the financial benefits are unknown

Trauma and Grief Component Therapy for Adolescents (TGCTA). Trauma and Grief Component Therapy for Adolescents was originally designed for adolescent war survivors in Bosnia in the 1990s but has since been adopted to other populations, including at-risk and justice-involved youth (Cox et al., 2007; Grasseti et al., 2015; Layne et al., 2002, 2008; Saltzman et al., 2003). TGCTA is a four-module group psychosocial intervention that includes the following: (1) foundational knowledge and skills to enhance posttraumatic emotional, cognitive and behavioral regulation to improve interpersonal skills; (2) group sharing and processing of traumatic events; (3) processing of grief and loss; and (4) resumption of adaptive development progression and creating a future orientation (Layne et al., 2002).

Effectiveness. Olafson and colleagues (2018) examined a multiyear pilot of TGCTA coupled with trauma-informed staff training, Think Trauma, and its impact in six residential juvenile facilities. The authors found that participants in TGCTA reported significant reductions in PTSD, depression, and anger symptoms. In facilities that tracked behavioral misconduct, participation in TGCTA reduced the number of incident reports filed (Olafson et al., 2018). Among delinquent youth in Delaware schools, Grasseti and colleagues (2015) found that 61% of participants in a 17-week group-based TGCTA program reported post-test improvements in PTSD symptoms and maladaptive grief reactions

Strengths and limitations. A strength of TGCTA is that it is a group-intervention that has been successfully delivered in residential facilities for justice-involved youth. TGCTA shows promise to reduce behavioral infractions and aggressive behavior among residentially committed juveniles, but has yet to be evaluated post-release or in community-based samples. While group interventions are often less costly than individual programming, the costs and benefits associated with the program are unknown

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). One of the most commonly used trauma-informed treatments for adolescents is Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). TF-CBT was developed to address PTSD and other trauma-related symptoms for children ages 3–18 (Cohen et al., 2006), and consists of 8–20 individual sessions with the youth and/or their parent/caregiver. TF-CBT focuses on psychoeducation, relaxation skills, affective expression, and cognitive coping skills in addition to the use of trauma narratives (Cohen et al., 2010).

Effectiveness. Recent meta-analyses of TF-CBT for adolescents report that compared to other trauma-informed treatments, TF-CBT is more effective in reducing PTSD symptoms, depression symptoms, and behavioral problems both immediately after treatment and at a 12-month follow-up (Cary & McMillen, 2012; de Arellano et al., 2014). TF-CBT has been utilized in residential treatment facilities, with evaluations reporting that participation significantly reduces PTSD severity scores (Joiner & Buttell, 2018). In one evaluation of TF-CBT in justice-involved youth, Cohen and colleagues (2016) conducted a randomized controlled trial of TF-CBT for adjudicated teens in residential facilities and found that youth receiving TF-CBT experienced significant improvement in PTSD and depressive symptoms. Exposure techniques that involve ongoing exposure to stimuli that result in fear or anxiety have been used in conjunction with TF-CBT therapies for adolescents with trauma histories (Deblinger et al., 1996, 1999). Exposure therapy requires an individual to recall traumatic events in order to develop strategies designed to reduce the negative emotions associated with the past trauma (Cohen et al., 2004; Cohen & Mannarino, 1993; Deblinger & Heflin, 1996).

Strengths and limitations. Of all trauma-informed programs for adolescents, TF-CBT has the strongest body of empirical support (Morina et al., 2016). TFCBT appears to be effective across gender and racial/ethnic groups (National Child Traumatic Stress Network, 2012b). While there is strong evidence that TF-CBT is an effective intervention in reducing trauma-related symptoms in adolescents, relatively few evaluations have assessed its effectiveness in justice-involved youth and has yet to be evaluated for its utility in reducing recidivism. A recent analysis found that TF-CBT costs an average of \$1,037 and yields a benefit of \$23,823 per participant highlighting the cost-effectiveness of the program (Washington State Institute for Public Policy, 2019b). A randomized controlled trial in Norway compared TF-CBT to treatment as usual concluded that TF-CBT was 91% to 96% more cost-effective and resource-use was higher in terms of minutes per session (Aas et al., 2019)

Skills-based programs for youth and staff. While CBT based-programs have largely been adapted for use with justice-involved youth, several trauma-informed programs were developed specifically for this population. These programs emphasize identifying strengths, establishing safety, and teaching self-regulation (Griffin et al., 2012). Skills-based programs focus on developing skills for both justice-involved youth and line staff working with traumatized individual. While research on the effectiveness of such programs is limited, exploratory evaluations of skills-based programs suggest they may be effective in reducing violence and recidivism for justice-involved youth (Baetz et al., 2019; Ford & Hawke, 2012). Table 2 provides a summary of trauma-informed programs for adolescents. Three variations of skills-based programs that have been used in this population are detailed below.

Trauma Affect Regulation: A Guide for Education and Therapy (TARGET). Trauma Affect Regulation: A Guide for Education and Therapy (TARGET) is a 4–12 session educational and therapeutic model designed specifically for the treatment of PTSD in juvenile delinquent samples that may delivered in a group or individual format (Ford & Russo, 2006). TARGET is a strengths-based approach designed to improve self-regulation in adolescents who experienced childhood trauma by training them to better understand how trauma affects the brain's stress response (Ford & Russo, 2006). Additionally, TARGET provides training to non-clinical staff, including juvenile justice system line workers to deliver TARGET groups in these settings (Ford, 2015).

Effectiveness. Preliminary evaluations of TARGET in secure juvenile justice settings report promising results. For example, a randomized clinical trial of TARGET with justice-involved females reported that a 10-session individual TARGET program improved symptoms associated with PTSD, anxiety, depression, and anger as compared with relational psychotherapy (Ford et al., 2012). In other samples of detained youth, TARGET was effective in reducing disciplinary infractions, youth threats toward staff, use of physical restraints, and seclusion rates (Ford & Hawke, 2012; Ford et al., 2005;

Table 2. Summary of Skills Based Trauma-Informed Programs for Juveniles.

Trauma-Informed Program	Program Components	Evaluations	Cost	Benefits	Limitations
TARGET	Strengths-based educational and therapeutic approach designed to improve self-regulation and to better understand how trauma affects the brain's stress response; 4-12 sessions in individual or group format	4 evaluations in juvenile delinquent samples; Participants reported reduced PTSD, anxiety, depression, and anger problems; Reduced disciplinary infractions in residential settings.	\$15,000-\$75,000 for training costs	Unknown	Not evaluated in community-based samples; Effects on recidivism unknown; Participant cost/benefits unknown
Think Trauma	Trauma-informed training for facility staff to address: (1) the impact of trauma on youth development and behavior; (2) the management of PTSD behaviors; (3) strategies to cope with secondary trauma; (4) compassion fatigue	2 evaluations in juvenile residential facilities; Participation was associated with reduced violent incidents.	Unknown	Unknown	Cost/benefits unknown; Effects on recidivism unknown
Sanctuary	System-wide trauma-informed approach through the empowerment of staff and justice-involved youth by creating a healing environment	4 evaluations, 2 in juvenile residential facilities; Reduced verbal aggression and increased internal control; Decreased youth-on-youth violence, use of restraints, and increased perceptions of safety.	\$65,000 for training costs	Unknown	Not evaluated in community-based samples; Effects on recidivism unknown; Participant cost/benefits unknown

Marrow et al., 2012). These findings suggest that TARGET may be an effective treatment in reducing violence among justice-involved youth

Strengths and limitations. There have been at least four evaluations of TARGET in juvenile delinquent samples, demonstrating improvements in trauma symptoms, depression, and anger problems in addition to disciplinary infractions in residential facilities. Yet, the utility of TARGET in reducing post-release recidivism or in community-based samples is unclear. The cost-benefit ratio for TARGET is largely unknown, with only an estimate of \$15,000–\$75,000 for costs associated with training (National Child Traumatic Stress Network, 2012c)

Think trauma: a training for staff in juvenile justice residential settings. The majority of staff working with justice-involved youth receive little training on the impact of childhood trauma (Marr et al., 2015). Think Trauma is a trauma-informed training for residential facility staff consisting of four modules the address: (1) the impact of trauma on youth development and behavior, (2) the management of posttraumatic reactions and behaviors among youth, (3) strategies to cope with secondary trauma, and (4) compassion fatigue among staff and clinicians (Olafson et al., 2018).

Effectiveness. A recent examination of the impact of Think Trauma combined with Brief Skills Training in Affective and Interpersonal Regulation—Adolescent (Brief STAIR-A) for youth found that providing skills training for both youth and staff was associated with a significant reduction of violent incidents at one residential facility (Baetz et al., 2019). Further, the authors reported that the reductions in violence were observed after both components were implemented, highlighting the importance of providing comprehensive training for both justice-involved youth and juvenile justice staff

Strengths and limitations. As Think Trauma is a curriculum-based training for staff in residential treatment centers, it is likely to be most effective when coupled with other trauma-informed services for committed juveniles. While there is indirect evidence that Think Trauma is an effective training model for reducing violent incidents in residential facilities, no evaluation to date has evaluated the effects of participation on post-release behavior or in community-based samples. Further, the costs and benefits associated with the program are unknown

Sanctuary model. The Sanctuary Model is a trauma-informed approach that takes a system-wide focus in order to create a therapeutic organizational culture using key principles including openness, healthy relationships, and nonviolence (Bloom, 2013; Bloom & Sreedhar, 2008). This model aims to improve organizational safety through the empowerment of staff and justice-involved youth by fostering a healing environment for justice-involved adolescents (Esaki et al., 2013). Sanctuary focuses on fostering a culture of (a) nonviolence; (b) emotional intelligence; (c) inquiry and social learning; (d) shared governance; (e) open communication; (d) social responsibility; and (d) growth and change (National Child Traumatic Stress Network, 2012d).

Effectiveness. There is evidence that Sanctuary is an effective treatment in residential facilities that facilitates internal control and reduces verbal aggression (Rivard, 2004; Rivard et al., 2005). In an evaluation of Sanctuary in a facility for adjudicated females, Elwyn and colleagues (2015) reported that the model decreased the number of youth-on-youth violence, the use of physical restraints and confinement, and increased perceptions of safety. In a follow-up study the authors found that facility staff reported an increase in communication with youth, decreased tension, and a stronger sense of community after model implementation (Elwyn et al., 2017)

Strengths and limitations. The primary strength of Sanctuary is that it is a system-wide approach to foster trauma-informed care (National Child Traumatic Stress Network, 2012d). Evaluations of

residential treatment centers that have adopted Sanctuary report reductions in violent behavior among residentially committed youth. However, research has not assessed whether Sanctuary is effective in reducing post-release recidivism or among youth ordered to community-based programs. While the exact cost and benefits are unknown, the costs of training are approximately \$65,000 (National Child Traumatic Stress Network, 2012d) and since it is a system-wide approach, it is likely more costly than other programming

Other treatment programs. While the primary focus of this review is trauma-informed interventions for adolescents, there are several other treatments that are widely used in justice-involved juveniles that could be adapted for use with traumatized youth. While these programs have been evaluated in terms of their effectiveness on reducing juvenile recidivism (see for example Baglivio et al., 2014b), few studies have examined the effectiveness of these programs specifically for youth experiencing childhood trauma.

Family Functional Therapy (FFT). Family Functional Therapy (FFT) is a strengths-based, short-term, structured, family intervention for at-risk and delinquent youth (Alexander et al., 2013). FFT typically consists of 12 sessions over 3–4 months and can be delivered in clinical, home, or school settings (Alexander et al., 2013). FFT follows a five-phase model: (1) engagement; (2) motivation; (3) relational assessment; (4) behavior change; and (5) generalization. FFT has been implemented across a wide variety of community settings in both the United States and internationally (Sexton & Turner, 2010).

Effectiveness. A quasi-experimental evaluation of FFT utilizing a comparison group of individual counseling reported that FFT participants had statistically lower rates of recidivism at a 30-month follow-up (Gordon et al., 1988). Further, the authors conducted a follow-up study and found that FFT participants had lower rates of adult recidivism (Gordon et al., 1995). Sexton and Turner (2010) compared FFT to standard probation and found that FFT significantly reduced felony and violent recidivism only when therapist adherence to the treatment model was high

Strengths and limitations. While there is evidence that FFT is an effective intervention for justice-involved youth, no evaluations to-date have examined its utility specifically for youth with trauma histories. Kerig and Alexander (2012) argue the importance of integrating trauma treatment into FFT for delinquent youth with trauma histories, especially since trauma itself is usually a family event. Future research is needed to examine how FFT has incorporated trauma-informed treatment and whether or not FFT is effective in this samples of traumatized justice-involved youth. Regarding cost-effectiveness, the cost of FFT for justice-involved youth is approximately \$3,333 and the benefits are \$37,587 (Aos & Drake, 2013)

Multisystemic Therapy (MST). Multisystemic Therapy (MST) is a home-based therapeutic intervention designed for youth between 12 and 17 who have serious antisocial and delinquent behavior (Henggeler & Borduin, 1990). MST is delivered at homes in order to reduce the barriers that families may face when receiving treatment services. The average length of treatment is 4 months and focuses on empowering parents and improving strengths and support systems (Henggeler et al., 1992). MST has been implemented in community-based mental health settings and among diverse populations (Borduin et al., 1995; Brunk et al., 1987; Henggeler et al., 1995, 1996).

Effectiveness. Evaluations of MST in justice-involved samples provide mixed support. A meta-analysis of MST evaluations between 1985 and 2003 reported no significant effects in terms of out-of-home placements, arrests, or convictions (Littell et al., 2009). Henggeler and colleagues (1992) found that MST participants had significantly lower recidivism rates and spent fewer days

incarcerated than youth who received treatment as usual. A randomized controlled trial reported that MST significantly reduced recidivism at a 4-year follow up (Borduin et al., 1995). In a sample of ninety-three justice-involved youth, Timmons-Mitchell and colleagues (2006) found that MST participants were less likely to be arrested and be arrested fewer times than the treatment-as-usual comparison group

Strengths and limitations. Multisystemic Therapy for Child Abuse and Neglect (MST-CAN) is an adaptation of MST for youth with trauma histories. A randomized controlled trial of MST-CAN for families involved with Child Protective Services revealed that MST-CAN was more effective than enhanced outpatient treatment in reducing mental health symptoms, out-of-home placements, parental distress, parent maltreatment, and changes in youth placement (Swenson et al., 2010). Although MST-CAN appears to be a promising intervention for children with trauma histories, this adaptation has yet to be evaluated with regard to recidivism. Regarding the cost-effectiveness of MST, the average cost for MST is \$7,522 and the average benefit is \$34,067 (Aos & Drake, 2013). Baglivio and colleagues (2014b) compared FFT to Multisystemic Therapy (MST) and found that while there were few significant differences in the effectiveness of the two treatments, FFT was much more cost-effective than MST

Aggression Replacement Training (ART). Aggression Replacement Training (ART) was designed as a 10-week, 30-hour group intervention for youth exhibiting antisocial and aggressive behavior (Glick & Goldstein, 1987). ART has three main components: (1) structured learning training; (2) anger control; and (3) moral reasoning (Glick & Gibbs, 2010). Since its development, ART has been widely used in both the United States and in several European countries (Brännström et al., 2016).

Effectiveness. An evaluation of ART among juvenile courts in Washington State reported a 16% reduction in felony recidivism for ART participants compared with waitlisted controls (Washington State Institute for Public Policy, 2004). In a sample of Scandinavian youth, Gundersen and colleagues (2006) reported that ART participants exhibited significant improvements in social skills when compared to youth receiving standard social and educational services. However, a recent meta-analysis of sixteen clinical studies on ART and antisocial behavior concluded that there is insufficient evidence to claim that ART is an effective intervention on recidivism, self-control, social skills, or moral development due to the lack of methodological rigor of the existing research (Brännström et al., 2016)

Strengths and limitations. While there are questions regarding methodological design, there is some evidence that ART may be a viable treatment option for justice-involved youth with trauma histories. While noting ART was not designed as a trauma-informed treatment, Kowalski (2019) compared to family-based programming and found that ART significantly reduced recidivism for both males and females, whereas family-based programs only reduced recidivism for males. Regarding cost-effectiveness, Aos and Drake (2013) noted that ART costs an average of \$1,543 and yields an average \$57,364 benefit per participant

Policy Recommendations and Future Research Directions

In the United States, an increasing number of state and county juvenile justice agencies are sponsoring trauma initiatives and creating trauma-informed systems of care (Ko et al., 2008). As noted by Dierkhising and Branson (2016), a trauma-informed system should: (1) offer routine, if not universal, screening for trauma histories; (2) refer youth who screen positive for trauma-related symptoms to a comprehensive assessment; and (3) provide evidence-based trauma-informed treatment if necessary. Further, in order to provide the most effective treatment, juvenile judges and correctional

staff should be educated about the impact of trauma and receive training and resources to better understand how to appropriately respond to trauma-related behaviors, including violence and delinquency (Griffin et al., 2012; National Child Traumatic Stress Network, 2012a). A systematic review of conceptualizations of trauma-informed juvenile justice systems found that there were 71 different recommendations or policies for practice (Branson et al., 2017). While there was overall consistency in the core domains of trauma-informed practice, there was tremendous variation in specific practices and policies. Thus, it is necessary that further research is needed to evaluate the array of trauma-informed interventions at each stage of the juvenile justice system.

In order to provide individualized treatment to juveniles with trauma histories, juvenile justice agencies should conduct trauma screening and comprehensive assessments of trauma-related symptoms for all youth who come into contact with the system (Griffin et al., 2012). There are a number of instruments that are commonly used in juvenile populations including: Adverse Childhood Experiences Questionnaire (ACEs), Massachusetts Youth Screening Instrument (MAYSI-2), Traumatic Events Screening Inventory (TESI), PTSD Reaction Index (PTSD-RI), the Childhood Trauma Questionnaire (CTQ-SF), Trauma Symptom Checklist for Children (TSCC), and the PTSD Checklist for Children/Parent Report (PCL-C/PR). After screening, youth who have experienced prior trauma should complete an in-depth diagnostic assessment with a clinician to determine the severity of symptoms (Ford et al., 2007). Additionally, juvenile justice staff should be trained on how to use screening and assessment results to identify which types of treatment would be the most beneficial to the individual youth (Ezell et al., 2018). More research is necessary to understand the validity of screening and assessment instruments in identifying trauma symptoms and appropriate treatment for justice-involved youth.

After screening and assessment, youth reporting trauma symptoms should be referred to appropriate trauma-informed treatment programs as soon as possible (Ko et al., 2008). It is also important that service providers utilize evidence-informed practices which have been demonstrated to be effective in treating trauma-related symptoms (Griffin et al., 2012). While there is strong evidence for the utility of both cognitive behavioral and skills-based programs in reducing trauma-related and other mental health symptoms, there is less known about the effectiveness of such programs on other outcomes including subsequent violence and recidivism. Justice-involved youth should be referred to trauma-informed care that is best suited to not only treat trauma-symptoms, but promote desistance from violence and delinquency.

While no program specifically designed to treat trauma has been evaluated in terms of reducing recidivism, the existing research on trauma-informed programs provide indirect evidence of the potential effectiveness of several treatment modalities. Of all adaptations of Cognitive Behavioral therapies, TF-CBT has the strongest empirical support in its utility in treating trauma symptoms, mental health symptoms, and behavioral problems (Cary & McMillen, 2012). Further, TF-CBT is cost-effective and has been widely used in diverse populations and in both clinical, community-based, and residential settings. However, it is important to note that evaluations of TF-CBT in justice-involved youth have yet to investigate its effectiveness in reducing recidivism and subsequent violence.

Overall, evaluations of skills-based programs that take a holistic, system-wide approach to treating trauma report success in reducing trauma symptoms, behavioral infractions and institutional violence, and improved communication between youth and staff during detention. As these interventions have only been assessed for behavioral change during detention, further research is needed to determine their impact on post-release violence and recidivism. Evaluations of TARGET, Sanctuary, and Think Trauma have found that programs that take a holistic approach in treating trauma reduce behavioral misconduct and violence in juvenile residential facilities (Ford et al., 2005; Ford & Hawke, 2012; Marrow et al., 2012; Olafson et al., 2018). These preliminary evaluations demonstrate the promise of trauma-informed programming designed specifically for justice-involved youth. Further, more research is needed to assess the cost-effectiveness of programs such as SITCAP-ART, TGCTA,

TARGET, Think Trauma, and Sanctuary which have no cost-benefit information available. While there is evidence that treatments such as FFT, MST, and ART are effective at reducing recidivism in justice-involved youth (Baglivo et al., 2014b; Kowalski, 2019; Timmons-Mitchell et al., 2006), these programs were not designed to directly treat trauma. One promising way to treat trauma in juvenile-justice settings could be to add trauma-informed components to these existing treatments (Kerig & Alexander, 2012; Swenson et al., 2010).

Although evaluations of trauma-informed programs for justice-involved youth show promise in reducing trauma symptoms and behavioral problems, no research to date has examined the effectiveness of these or other trauma-informed programs in reducing youth violence or recidivism in community samples. This is an important gap to address, as there is an established link between trauma and violence, and evidence that youth are more likely to become chronic offenders if trauma symptoms are not effectively addressed (Ko et al., 2008). Future research should evaluate the effectiveness of trauma-informed treatment for juveniles ordered to community-based sanctions.

This systematic review highlights the need for future research to evaluate specific trauma-informed treatment for justice-involved youth on outcomes such as youth violence and recidivism. While there are several promising programs for justice-involved youth with trauma histories, more research is needed to understand their impact in the broader population, especially in community-based samples. Only by more carefully examining the ways in which trauma impacts youth violence and recidivism, and how trauma-informed treatment mitigates the negative consequences of trauma, can we identify the most effective interventions to treat trauma and reduce recidivism among justice-involved youth.


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