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Trauma-focused cognitive behavioral therapy with adolescents with illegal sexual behavior in a secure residential treatment facility

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1. Introduction

Annually, over 50,000 justice-involved youth are housed in approximately > 2000 out-of-home placements in the United States, with the most common placement being residential treatment facilities (RTFs) (Hockenberry, 2014). One distinguishing characteristic of youth in these placements is their trauma history. Notably, of those youth in RTFs, > 90% report a history of at least one potentially traumatic event in two independent surveys of nationally representative samples (Abram et al., 2004; Ford, Hartman, Hawke, & Chapman, 2008). This rate is approximately three times higher than representative community-based samples (Costello, Erkanli, Fairbank, & Angold, 2002). Relatedly, the incidence of posttraumatic stress disorder (PTSD) is 4 to 8 times higher in juvenile justice populations as compared to community-based samples (e.g., Ford et al., 2008; Rosenberg et al., 2014). Trauma exposure—especially cumulative exposure—is associated with increased risk not only of PTSD and complex trauma but also a variety of other behavioral health problems such as anxiety, depression, substance use, conduct problems, and suicidal ideation (e.g., Copeland, Keeler, Angold, & Costello, 2007; Kerig, Ward, Vanderzee, & Moeddel, 2009; Rosenberg et al., 2014; Wasserman & Mcreynolds, 2011). Not surprisingly, for justice-involved youth in residential placement, exposure to traumatic stressors is associated with increased rates of problem behaviors—including conduct problems and suicidal activity (Delisi et al., 2010). Consequently, trauma-informed screening and assessment of these youth is critical for the physical and psychological safety of both youth and staff in RTFs (Kerig, Ford, & Olafson, 2014; Newman, Larsen, Thompson, Cyperski, & Burkhart, in press).

1.1. Types of trauma exposure in justice-involved youth

Child maltreatment (i.e., physical, sexual, and emotional abuse, interpersonal violence exposure, and physical neglect) is a significant risk factor for the development of antisocial and illegal behavior among both male and female youth (e.g., Asscher, der Put, & Stams, 2015; Briggs et al., 2013; Jespersen, Lalumière, & Seto, 2009; Vidal et al., 2017). In fact, maltreatment doubles the risk that a youth will engage in criminal behavior with the risk of engaging in crime increasing with the experience of multiple forms of maltreatment (Currie & Tekin, 2006). Justice-involved youth in RTFs have particularly high rates of and PTSD and complex PTSD (i.e., the experience of varied and cumulative traumatic exposure; for a review of complex trauma in secure settings, see Ford, Chapman, Connor, & Cruise, 2012). In addition, theory and research indicate that justice-involved youth have been exposed to chronic and pervasive interpersonal traumas—often involving caregivers (e.g., Ford et al., 2012). Consequently, these youth present with symptoms more consistent with developmental trauma disorder (DTD) and complex PTSD—the consequences of which often include disruptions in interpersonal, cognitive, affective, and psychophysiological functioning that manifest in multiple and pervasive ways (e.g., Ford et al., 2012).

Adolescents with illegal sexual behaviors (AISB) represent a unique population in RTFs (Ford et al., 2012). AISB are typically males between the ages of 13 and 18 who have committed sexually based crimes—most typically against minors (Finkelhor, Ormrod, & Chaffin, 2009). In many states, AISB are mandated to receive treatment—often in RTFs. Although AISB share many similarities with other justice-involved youth, they typically present with more trauma exposure (e.g., Newman et al., in press; Seto & Lalumière, 2010). Indeed, the onset of illegal sexual behavior in adolescence has been specifically linked with complex trauma (e.g., Ford et al., 2012) and childhood maltreatment (e.g., Boonmann et al., 2016; Leenarts, Mcreynolds, Vermeiren, Doreleijers, & Wasserman, 2013; Seto & Lalumière, 2010). A recent meta-analysis found that AISB—when compared to other justice-involved youth—are substantially more likely (5.5 times) to have experienced sexual abuse and significantly more likely to have experienced physical abuse and emotional neglect (Seto & Lalumière, 2010). Notably though, some researchers have found a relationship between the onset of sexual offending and physical abuse and neglect history in males (but not females), but did not find a relationship between sexual abuse history and sexual offending (Widom & Massey, 2015). In sum, there is an important relationship between traumatic stress and the

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onset of illegal sexual behavior among youth, though the exact nature of this relationship has not been fully explicated (e.g., Seto & Lalumière, 2010). Regardless, AISB are at increased risk for trauma exposure compared to other adjudicated youth (e.g., Seto & Lalumière, 2010). Although very little research has been conducted withAISB in RTFs, current research indicates that children and adjudicated youthwith problematic behaviors can benefit from evidence-based treatment (EBT) addressing their behavior problems (for a review of EBTs for problematic sexual behaviors, see Dopp, Borduin, Rothman, & Letorneau, 2016).

Given the incidence of trauma exposure and PTSD among justice-involved youth including AISB (e.g., Ford, Chapman, Hawke, & Albert, 2007; Rosenberg et al., 2014; Newman et al, in press), there is a critical need for trauma-informed screening and assessment as well as treatment, as appropriate, in residential placement (see Levenson, 2014). Because the majority of youth are housed in RTFs, RTFs should be well-positioned to address the treatment needs of youth requiring TIC (Briggs et al., 2013; Cohen et al., 2016; Huang, Macbeth, Dodge, & Jacobstein, 2004). As described by Cohen et al. (2016), RTFs represent a valuable trauma-informed treatment context for youth, especially given that youth in these settings are significantly more likely to meet criteria for PTSD (Rosenberg et al., 2014). Typically, attrition is a critical consideration for treatment completion in community-based settings. Ironically, however, because many adjudicated youth and AISB, in particular, are mandated to complete treatment in RTFs, attrition often is not as much of a concern. In this context, youth cannot unilaterally withdraw or be withdrawn from treatment, yet mandated treatment then provides its own unique challenges for youth and staff (for an overview of treatment outcomes and related issues among youth in residential care, see De Swart et al., 2012; Souverein, Van der Helm, & Stams, 2013; Strijbosch et al., 2015). Indeed, other clinically important treatment variables, such as caregiver involvement (see Guttermann et al., 2016), are often complicated or limited within RTFs. Some RTFs may not have trained staff to respond sensitively and effectively to youth stress reactions or considered how to protect staff from vicarious traumatization (Ford, Kerig, & Olafson, 2014).

Moreover, although systems are increasingly allocating their resources towards the implementation of evidence-based treatment (e.g., Greenwood & Welsh, 2012; Walker, Bumbarger, & Phillippi, 2015), there is still wide variability in the implementation of EBT for adjudicated youth across and within juvenile justice systems, including RTFs (Mears, Cochran, Greenman, Bhati, & Greenwald, 2011), and the need for EBTs is especially great for AISB. For example, although cognitive-behavioral therapy (CBT) is the most widely used EBT in AISB and its use is supported with children with problematic sexual behaviors (CBT-PSB; Carpentier, Silovsky, & Chaffin, 2006), the use of CBT with AISB remains experimental (Dopp, Borduin, Rothman, & Letourneau, 2016). Relatedly, MultisystemicTherapy for Problem Sexual Behaviors (MST-PSB; Borduin, Letourneau, Henggeler,& Swenson, 2009) is the only well-supported EBT for problematic sexual behaviors in adolescents, yet it has not been used with AISB in RTFs. Moreover, none of these EBTs are not designed to address trauma symptoms. Overall, given the prevalence of trauma-related symptoms and the limited use of EBTs in these settings, there is a critical need for the implementation and dissemination of trauma-informed EBTs for adjudicated youth in RTFs—especially AISB who are at greater risk for prior trauma exposure.

1.2. Implementation of TF-CBT in RTFs

One such EBT developed for youth with trauma exposure and associated behavioral and/or emotional problems is trauma-focused cognitive behavioral therapy (TF-CBT; e.g., Cohen, Mannarino, & Deblinger, 2006; Cohen, Berliner, & Mannarino, 2010). Broadly, the core elements of TF-CBT involve: psychoeducation about the symptoms of PTSD, behavioral relaxation and affective recognition skills, cognitive coping strategies, gradual exposure to trauma-related stimuli, and safety-related skills (Cohen et al., 2006; Cohen et al., 2010; Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2011). Despite the efficacy of TF-CBT for a wide variety of youth in a variety of outpatient settings (e.g., Cohen, Deblinger, Mannarino, & Steer, 2004), the successful implementation and effectiveness of TF-CBT in RTFs is not well documented. Indeed, there are numerous barriers to effective implementation of TF-CBT within RTFs due to a variety of therapist, client, and organizational factors (see Cohen et al., 2016), which may account for the lack of research and implementation in this area. Nevertheless, preliminary research by Cohen et al. does suggest that TF-CBT can be implemented with fidelity within RTFs to significantly decrease PTSD and depressive symptoms in adjudicated youth. However, the replicability and generality of current findings must be evaluated within additional RTFs and with different populations of juvenile delinquents to determine the clinical utility and applicability of TF-CBT within RTFs (Cohen et al., 2016). In particular, the efficacy of TF-CBT among AISB in RTFs should be examined, as AISB are, generally, more likely to have experienced certain types of child maltreatment—and sexual abuse, in particular—than other justice-involved youth (Seto & Lalumière, 2010). They are also more likely to experience suicidal ideation, anger problems, thought disorders (Boonmann et al., 2016), and have a higher lifetime history of suicide attempts (Leenarts et al., 2013) relative to other justice-involved youth. Accordingly, the purpose of the present investigation was to evaluate the feasibility and preliminary treatment outcomes of TF-CBT in reducing symptoms of PTSD within a secure RTF setting for AISB.

2. Methods

2.1. Participants

2.1.1. Therapist participants

Data was collected for therapist participants who elected to participate in TF-CBT training and were active in or had completed training between February 2015 and July 2017. A total of 15 mental health therapists provided individual therapy and implemented TF-CBT to participants during the current study. Therapists were trained in TF-CBT in three different cohorts. Descriptive information for the all therapist cohorts is included in Table 1. Treatment fidelity data were collected as part of the TF-CBT treatment evaluation, though the use of these data for research was voluntary.

2.1.2. Youth participants

Participants consisted of 107 males who were adjudicated for a criminal offense and referred for treatment to a residential treatment program within a secure facility in a Southeastern state. Data were collected for youth participants who were in the program from February 2015 to July 2016. Consent was obtained for 83 of the original participants. Of these participants, 82 were adjudicated for a criminal sexual offense and one male was adjudicated for a criminal non-sexual offense. Descriptive information for the participants is included in Table 2.

2.2. Measures

2.2.1. UCLA PTSD Reaction Index for DSM-5 (UCLA PTSD-RI; Steinberg et al., 2013)

The UCLA PTSD-RI is a self-report questionnaire that records the frequency of PTSD symptoms occurring over the past month in children and adolescents. Responses range from 0 (none of the time) to 4 (most of the time), and can be calculated to map onto Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5; American Psychiatric Association, 2013) criteria to yield a clinical cutoff score (38 or higher) and the following subscale scores: Category B (Intrusion), Category C (Avoidance), Category D (Negative Cognitions/Mood), and

Table 1
Demographic information about therapist participants in study.

	Cohort 1	Cohort 2	Cohort 3	Total[a]
	(*n* = 3; 18.8%)	(*n* = 6; 37.5%)	(n = 6; 37.5%)	(*n* = 16; 100%)
Trainer	1	1	2	
Date of Training	2/11/2015	2/25/2016	6/8/2016	
Gender – Female	2 (66.7%)	5 (83.3%)	4 (66.7%)	12 (75.0%)
Gender – Male	1 (33.3%)	1 (16.7%)	2 (33.3%)	4 (25.0%)
Race – White	–	3 (50.0%)	4 (66.7%)	8 (50.0%)
Race – Black	3 (100%)	2 (33.3%)	2 (33.3%)	7(43.8%)
Race – Hispanic	–	1 (16.7%)	–	1(6.3%)
Masters	3 (100%)	2 (33.3%)	2 (33.3%)	7(43.8%)
Counseling	2 (66.7%)	–	–	2 (12.5%)
Social Work	–	1 (16.7%)	–	1 (6.3%)
MFT	1 (33.3%)	1 (16.7%)	1 (16.7%)	3 (18.8%)
Other	–	–	1 (16.7%)	1 (6.3%)
PhD Student	–	3 (50.0%)	2 (33.3%)	5 (31.3%)
Clinical	–	–	–	4 (25.0%)
HDFS[b]	–	–	–	1 (6.3%)
PhD/PsyD	–	1 (16.7%)	2 (33.3%)	4 (25.0%)
Clinical	–	–	2 (33.3%)	4 (25.0%)
Developmental	–	1 (16.7%)	–	1 (6.3%)
Licensed	–	1 (16.7%)	2 (33.3%)	4 (25.0%)

Note. Valid percentages are listed.
[a] One therapist was trained and certified previously and managed two cases during the study. These cases are included in the total amounts, but not cohort amounts.
[b] Human Development and Family Sciences.

Table 2
Frequency of participants who experienced trauma.

Participant demographics	Traumatic event + TF-CBT	Traumatic event + no TF-CBT	Total
White	28 (70%)	20 (46.5%)	48 (57.8%)
Black	10 (25%)	21 (48.8%)	31 (37.3%)
Hispanic	2 (5%)	2 (4.7%)	4 (4.8%)
Age	15.7 (1.59)	15.7 (1.41) years	15.69 (1.47)

Category E (Arousal/Hyperactivity). The UCLA PTSD-RI possesses good reliability (α = 0.88–0.91) and internal consistency (α = .0.67–90; see Steinberg et al., 2013).

2.2.2. The Juvenile Victimization Questionnaire (JVQ; Hamby, Finkelhor, Ormrod, & Turner, 2004)

The JVQ is a questionnaire consisting of 34 questions involving major forms of offenses or victimizations youth may have experienced within the last year, including conventional crime, child maltreatment, peer and sibling victimization, sexual victimization, and witnessing/indirect victimization (e.g., Finkelhor, Hamby, Ormrod, & Turner, 2005; Finkelhor, Ormrod, Turner, & Hamby, 2005). Items are scored dichotomously ("yes/no") according to whether each form of victimization was experienced and yield module and composite scores (Hamby et al., 2004). The JVQ possesses good internal consistency (α = 0.80) and test-retest reliability (see Finkelhor, Hamby, et al., 2005; Finkelhor, Ormrod, et al., 2005).

2.2.3. The Trauma Symptom Checklist for Children (TSCC; Briere, 1996)

The TSCC is a self-report measure intended for use in the evaluation of children and adolescents who have experienced traumatic events, including childhood physical and sexual abuse, victimization by peers, major losses, the witnessing of violence done to others, and natural disasters. The TSCC consists of 54 items describing trauma-related symptomatology, with respondents rating the frequency of experienced symptoms on a four-point Likert scale (Briere, 1996). The TSCC possesses good internal consistency (α = 0.81–0.88; Briere, 1996).

2.2.4. Behavior Assessment System for Children Second Edition, Self-Report of Personality-Adolescent (BASC-2-SRP-A); Reynolds & Kamphaus, 2004)

The BASC-2 SRP-A is a multidimensional self-report rating scale consisting of 176 items used to evaluate the behavior and self-perceptions of children and adolescents aged 12 to 21 years (Reynolds & Kamphaus, 2004). Individuals provide responses via a true-false and four-point Likert format, which yield composite, clinical, and adaptive subscales that have been found to possess moderate to good internal consistency (α = 0.67–0.95) and reliability(0.63–0.84; Reynolds & Kamphaus, 2004).

2.2.5. Millon Adolescent Clinical Inventory (MACI;Millon, Millon, & Davis, Grossman, 2006)

The MACI is a self-report measure that consists of 160 true-false items and assesses a broad range of psychological problems and psychosocial functioning among adolescents. Commonly used in clinical populations for assessment and treatment planning, the MACI possesses moderate internal consistency (α = 0.73–0.91) and reliability (0.57–0.92; Millon et al., 2006). Current research on the MACI's structural validity is inconsisent but a recent study provides some support for a two-factor internalizing/externalizing model in AISB (see Newman, Larsen, Cunningham, & Burkhart, 2015).

2.2.6. RTF Behavioral Tracking System

The RTF uses a point-based, independent group contingency management program to monitor juveniles' behavior throughout each month and support appropriate behavior. Juveniles are able to earn up to 12 points per day for appropriate behavior (e.g., following directions, completing hygiene tasks, participating in groups) that are exchangeable for backup reinforcers (e.g., snacks, access to extra leisure activities) during bi-weekly exchange periods. The total number of points students have earned throughout the month are divided by the total number of possible points to yield an overall monthly behavioral percentage ranging from 0% to 100%.

2.2.7. TF-CBT Brief Practice Checklist (Deblinger, Cohen, Mannarino, Murray, & Epstein, 2007)

The TF-CBT Brief Practice Checklist is designed to evaluate therapist uptake of the TF-CBT treatment components summarized by the acronym PRACTICE : Psychoeducation about trauma, Parenting skills, Relaxation skills, Affective modulation skills, Cognitive coping skills, Trauma narration and cognitive processing of the traumatic event, In-vivo mastery of trauma reminders and desensitization, Conjoint youth-parent sessions, and Enhancing safety and future developmental trajectory.

2.3. Procedures

2.3.1. Trauma screening and assessment

Upon entry to the RTF, juveniles received a comprehensive pre-treatment psychological evaluation for the purpose of informing court-ordered treatment and identifying important psychosocial and cognitive variables related to risk assessment, psychopathology, and academic performance. Although youth could choose to withhold consent for the use of any of the data collected during the pre-treatment evaluation for research purposes, participation in the evaluation was still requested to inform treatment planning. Consistent with current NCTSN recommendations (Kerig et al., 2014), during this pre-treatment evaluation, youth were also screened for trauma history and clinical symptoms indicative of trauma exposure at intake (within 7 days of the date of entry) using a variety of measures (e.g., MACI, BASC-2 SRP-A, JVQ, or TSCC). If this initial screening indicated that the youth has experienced a traumatic events or further investigation was warranted (as determined by the director of the trauma services program), consent was again obtained and the youth was administered the UCLA PTSD-RI by a trained TF-CBT therapist within two weeks of intake. In general, on

the UCLA PTSD-RI, symptom severity scores of 25 are generally considered clinically elevated, with scores of 38 or higher often being considered the optimal cut-off for a diagnosis of PTSD. All UCLA-UCLA PTSD-RI examiners received didactic instruction on the measure as part of their introductory TF-CBT training and received supplemental training by the site supervisor. After completing a half-day didactic, examiners were required to view an administration and be observed providing an administration by an experienced examiner. Given the wide variability in reading levels in these youth, examiners were trained to administer the measure as an interview. Youth were recommended for TF-CBT in one of two ways. If the youth scored a total UCLA PTSD-RI score of 38 or above, TF-CBT was recommended unless contraindicated due to clinical factors (e.g., active suicidal ideation), in which case treatment was suspended until stabilization. Additionally, following the Project BEST recommendations by Lang, Ford, and Fitzgerald (2010), youth who screened positive for a traumatic event and received a total score of < 38 on the UCLA PTSD-RI but also displayed clinical symptoms, functional impairment associated with PTSD, and had a caregiver or adult able to participate in treatment were referred for TF-CBT as well. Youth recommended for TF-CBT were assigned TF-CBT therapists, provided with their UCLA PTSD-RI results, given information about TF-CBT to facilitate informed consent, and asked if they wished to receive TF-CBT. Progress of TF-CBT clients was monitored in weekly supervision meetings with graduate therapists and bimonthly consultation meetings with staff therapists. Following completion of treatment, the UCLA PTSD-RI was re-administered to evaluate changes in symptom severity.

2.3.2. TF-CBT training, consultation, and supervision

The training program was specifically designed to comply with National Child Traumatic Stress Network (NCTSN) guidelines for the assessment and treatment of traumatic stress in juvenile justice settings (see Kerig et al., 2014). In accordance with the NCTSN model, all therapists completed a 10-hr online training program, TF-*CBTWeb (*https://:www.musc.edu/tfcbt) prior to attending a multi-day live workshop led by a certified TF-CBT trainer, and were currently participating in, or had previously completed, six months of bi-weekly phone consultation with the trainer. Regardless of their phase of training (active or complete), participating therapists also were asked to attend weekly group consultation and/or supervision, as applicable, with the TF-CBT site supervisor who is a licensed psychologist and a nationally certified TF-CBT therapist. To enhance fidelity, the site supervisor also received regular, ongoing professional consultation (with the fourth author)—who is a TF-CBT master trainer with expertise in working with AISB. As noted below, based on the results of fidelity monitoring, the site supervisor arranged for the trainer to provide additional live advanced skills workshops. The implementation guidelines for TF-CBT recommend ongoing fidelity monitoring. Throughout the study, fidelity data to the TF-CBT model was tracked through the completion of the TF-CBT Brief Practice Checklist. Each therapist was required to provide checklists for a minimum of two clients.

3. Results

During intake and screening, a total of 83 adolescents were identified as having experienced at least one traumatic event. The vast majority (98.7%) of participants referred for additional assessment via the UCLA-PTSD-RI were screened in via self-report measures (i.e., JVQ, MACI, TSCC), with a large percentage (42.9%) of these youth endorsing at least one critical item related to suicidal ideation on a self-report measures. Of these youth, 40 were referred for TF-CBT (see Table 2). The mean age of the group referred for TF-CBT was 15.7 years, and majority of the adolescents who received TF-CBT were white (70%), followed by black (25%) and Latino (5%). Similarly, the mean age of the group not referred for TF-CBT was 15.7 years, though the majority of adolescents in this group were black (48.8%) followed by white (46.5%) and Latino (4.7%). There were no differences between groups on the RTF Behavioral Tracking System (p = .33) at the initial UCLA-PTSD-RI assessment. The majority of participants (79.7%) were referred for TF-CBT via the UCLA-PTSD-RI, though others were referred through Project BEST criteria (17.7%) or through a direct referral from the program director (2.5%).

Table 3
Frequency of UCLA-PTSD-RI trauma endorsement across treatment groups.

Trauma type	TF-CBT	No TF-CBT	Index trauma
Disaster	12 (33.3%)	9 (21.4%)	1 (1.3%)
Accident	10 (27.8%)	10 (23.8%)	1(1.3%)
War	3 (8.3%%)	2 (4.8%)	0
Domestic Violence-Victim	19 (52.8%)	9 (21.4%)	6 (7.8%)
Domestic Violence-Witness	16 (44.4%)	13 (31%)	1 (1.3%)
Physical Assualt-Vicim	19 (52.8%)	16 (38.1)	4 (5.2%)
Physical Assualt-Witness	15 (41.7%)	15 (35.7%)	1 (1.3%)
Dead body	10 (27.8%)	6 (14.3%)	0
Touching of private parts	16 (44.4%)	8 (19%)	6 (7.8%)
Witnessed death of a loved one	21 (58.3%)	15 (35.7%)	7 (9.1%)
Scary/painful medical treatment	9 (25%)	6 (14.3%)	1 (1.3%)
Sexual abuse	10 (27.8%)	4 (9.5%)	9 (11.7%)
Death of a loved one	31 (86.1%)	35 (83.3%)	30 (39%)
Other	10 (27.8%)	6 (14.3%)	2 (2.6%)
Mean # of traumas (2–14)	5.37 (2.34)	3.55 (1.69)	–
Mean point percentage at UCLA-PTSD-RI	96.93 (4.63)	93.4 (12.78)	–
Mean age of index trauma	10.17 (4.33)	10.15 (4.10)	–

See Table 3 for frequency of symptoms endorsement on the UCLA PTSD-RI for TF-CBT treatment and no-treatment groups. Adolescents referred for TF-CBT endorsed significantly more traumas on the UCLA PTSD-RI trauma checklist than youth not referred for TF-CBT, t (60.38) = 3.85, p < .001. There were no differences between groups on their ages at the time of their index traumas (p = .98). For youth referred for TF-CBT, the three most frequent traumas endorsed were death of a loved one (86.1%), witnessing the death of a loved one (85.3%), and experiencing physical assault/domestic violence (52.8%). For youth not referred for TF-CBT, the most frequent traumas endorsed were death of a loved one (83.3%), experiencing physical assault (38.1%), and witnessing physical assault (35.7%) or the death of a loved one (35.7%). The most common index traumas, across both groups, were experiencing the death of a loved one (39%), sexual abuse (11.7%), and witnessing the death of a loved one (9.1%). There were no significant differences in trauma endorsement by demographic group (see Table 4), with the exception of witnessing physical assault (White: 27%; Minority: 55%; p = .018) and unwanted touching of private parts (White: 44%; Minority: 12%; p = .001). Treatment fidelity data (see Table 5) suggest an average treatment duration of 24.8 sessions for therapists implementing TF-CBT, with therapists allocating the most sessions towards trauma narration (M = 6.8; SD = 2.7) and the fewest sessions towards conjoint family sessions (M = 0.89; SD = 0.92).

Table 4
Mean frequency of TF-CBT component implementation during treatment.

Component	Mean (SD)	Range
Psychoeducation	3.3 (0.87)	2–5
Parenting	1.3 (1.2)	0–4
Relaxation	3.4 (3.3)	1–10
Affective modulation	3.0 (1.0)	2–5
Cognitive coping	2.3 (0.5)	2–3
Trauma narration	6.8 (2.7)	3–11
In-vivo	1.8 (2.8)	0–9
Cognitive processing	2.4 (1.0)	3–4
Enhancing safety	2.2 (1.4)	1–5
Conjoint session	0.89 (0.92)	0–3
Total caregiver sessions	4.7 (4.1)	0–11
Total TF-CBT sessions	24.8 (7.4)	16–39

Table 5
Percentage of UCLA PTSD-RI trauma endorsement by demographic group.

				p	OR
Variable	White%	Minority%	χ^2(*df*, *N*)		
Disaster	31	21	ns	ns	ns
Accident	31	18	ns	ns	ns
War	2	12	ns	ns	ns
Domestic Violence-Victim	44	24	ns	ns	ns
Domestic Violence-Witness	44	27	ns	ns	ns
Physical Assault-Victim	47	42	ns	ns	ns
Physical Assault-Witness	27	55	6.25 (1,78)	< 0.018	1.61
Dead body	13	30	ns	ns	ns
Touching of private parts	44	12	9.34 (1,78)	0.001	3.67
Witnessed death of a loved one	42	52	ns	ns	ns
Scary/painful medical treatment	2	18	ns	ns	ns
Sexual abuse	24	9	ns	ns	ns
Death of a loved one	84	85	ns	ns	ns
Other	2	21	ns	ns	ns

Note: *OR* = odds ratio.

Table 6
Mean pre-treatment and post-treatment UCLA-PTSD-RI scores.

	Pre-Treatment	Post-treatment	t
Cluster/score	M (SD)	M (SD)	
UCLA PTSD index			
Intrusion	10.7 (4.6)	2.0 (2.2)*	−7.26***
Avoidance	5.3 (2.2)	2.7 (2.3)	−4.30**
Negative cognitions/mood	16.1 (6.3)	6.5 (6.4)	−5.15***
Arousal/reactivity	12.8 (6.6)	4.6 (5.5)	−5.19***
UCLA total	44.9 (17.6)	15.8 (13.9)	−6.71***

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 7
Mean pre-treatment and post-treatment MACI and BASC-2 SRP scores.

Measure/Scale	Pre-treatment	Post-treatment	*t*
	M (*SD*)	*M* (*SD*)	
MACI			
Eating dysfunctions	26.4(25.7)	18.3 (23.8)	−1.77
Substance abuse proneness	49.2 (15.6)	37.2 (20.8)	−2.98*
Delinquent predisposition	61.2 (15.6)	63.9 (15.3)	0.58
Impulsive propensity	68.4 (26.2)	53.5 (28.0)	−1.86
Anxious feelings	67.0 (20.0)	66.4 (17.6)	−0.11
Depressive affect	73.4 (27.4)	46.5 (29.3)	−4.95***
Suicidal tendency	46.9 (31.5)	29.1 (26.1)	−3.68**
BASC-2 SRP-A			
Internalizing problems composite	57.7 (12.0)	45.6 (9.2)	−4.57**
School problems composite	54.4 (9.7)	43.7 (6.7)	−2.67*
Emotional symptoms index	58.5 (10.7)	45.9 (7.4)	−4.82**
Inattention/hyperactivity	64.1 (15.1)	56.5 (10.5)	−2.27*
Anxiety	49.7 (12.0)	44.8 (8.6)	−1.41
Depression	60.4 (10.4)	46.2 (7.6)	−5.97***
Sense of inadequacy	57.4 (14.9)	46.9 (8.9)	−3.31**

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Treatment outcome data are available for 17 of the 24 individuals who have completed TF-CBT to date (see Table 6). There were significant decreases in participants PTSD-UCLA-RI scores from pre-treatment to post-treatment on Intrusion ($t(16) = -7.26$, $p < .001$, Avoidance ($t(16) = -4.30$, $p = .001$, Negative Cognitions/Mood ($t(16) = -5.15$, $p < .001$, and Arousal/Reactivity indices ($t(16) = -5.19$ $p < .001$. There was also a significant decrease in participants' UCLA Total scores from pre-treatment to post-treatment, ($t(16) = -6.71$, $p < .001$. Pre-and-post treatment data collected on a subset of participants who completed TF-CBT ($n = 10$) also revealed significant reductions on the Substance Abuse Proneness, Depressive Affect, and Suicidal Tendency clinical scales on the MACI, as well as the Internalizing Problems Composite, School Problems Composite, Emotional Symptoms Index, Inattention/Hyperactivity, Depression, and Sense of Inadequacy clinical scales on the BASC (see Table 7).

4. Discussion

The current study is among the first examining the feasibility of implementing TF-CBT, an evidence-based trauma-informed treatment for children adolescents, in an RTF setting for AISB. Overall, TF-CBT implementation efforts were successful. That is, TF-CBT therapists successfully completed trauma screenings, facilitated treatment completion, and provided TF-CBT with fidelity in a challenging RTF setting. Importantly, youth who completed treatment experienced clinically significant reductions in PTSD symptoms as measured by the UCLA PTSD-RI. Relatedly, treatment completers experienced other positive treatment outcomes including symptom reductions on a variety of BASC and MACI clinical scales. In sum, the current study demonstrated positive feasibility outcomes for the successful implementation of TF-CBT with adjudicated AISB in an RTF setting.

Similar to Cohen et al. (2016), the current study found that TF-CBT could be successfully implemented with adjudicated youth in RTF who had a variety of different trauma types. These findings are consistent with previous research noting positive treatment outcomes with adolescents in RTF (e.g., Cohen et al., 2016) and further support the use of TF-CBT with youth with complex trauma (e.g., Cohen et al., 2016; Cohen, Mannarino, Kliethermes, & Murray, 2012). Notably, given the high degree of behavioral dysregulation observed among AISB (e.g., Boonmann et al., 2016), the expert consultant for the study recommended an application that emphasized the use of the Safety module throughout treatment given the high degree of complex trauma in this sample (Cohen et al., 2012). Subsequent face-to-face follow-up training and consultations by the expert trainer and the site supervisor emphasized this approach and allowed therapists to continue TF-CBT when youth experienced behavioral episodes that otherwise would have interrupted or discontinued treatment.

These results generally support previous research indicating that face-to-face workshops combined with ongoing consultations contribute to better implementation outcomes (e.g., Beidas & Kendall, 2010; Cohen et al., 2016). Although different implementation strategies were not examined in this study, the high level of training and supervision provided to therapists in the current study is notable and likely a major contributing factor for implementation success. Similar to prior research, participating therapists completed the web-based TF-CBT*Web* training, a 2–3 day face-to-face workshop, and ongoing expert consultation. In the current study, therapists also benefitted from regular ongoing group and individual supervision and/or consultation from an onsite supervisor certified in TF-CBT supported by an expert trainer. To remain a member of the TF-CBT treatment program and be assigned eligible cases, therapists were required to participate in these onsite programs even after completing certification training. Treatment fidelity was also continuously monitored, which likely contributed to better implementation outcomes. The site supervisor and trainer provided ongoing feedback to participants based on their fidelity tracking using the checklist, symptom monitoring using assessment measures, and treatment progression.

Another important finding was that attrition levels were lower than those observed in other TF-CBT implementation studies with adjudicated youth in RTFs (Cohen et al., 2016). These results are most

likely a byproduct of important organizational and legal considerations unique to this RTF. Under current state law, participants in the AISB treatment program are required to successfully complete treatment in an approved program prior to release (Alabama Code, Section 15-20A-34(c)(3)). Notably, most attrition was due to external factors (e.g., external transfer and release) among participants who were in the general population and *not* in the mandatory program for illegal sexual behavior. Most treatment programs within RTFs are likely not provided with such legal mandates. Although these mandates may support treatment completion, sadly, due to the lack of step-down or alternative treatment options in the state, they also contribute to longer lengths of stay and family separation.

During consultations with therapist participants, the site supervisor and expert consultant encouraged treatment of PTSD symptoms prior to substantive elements of treatment for problematic sexual behavior (PSB; i.e., disclosure, functional analysis of PSB, restitution, etc.) except in extenuating circumstances. One rationale for this approach was to support general EBT guidelines for treating acute clinical symptoms after identification and stabilization of intervening factors (e.g., severe depression, suicidality). Another rationale was to facilitate the emphasis of core CBT skills early in treatment for some therapists who had less training in CBT. In general, therapists reported success with this approach and noted that skills gained from TF-CBT—especially PRAC modules—were helpful in later treatment for PSB. Although it is possible that addressing PTSD symptoms earlier in treatment facilitated later PSB treatment progress, future research in this area is needed.

Relatedly, therapists were very successful in engaging youth in the study, with a majority of youth agreeing to participate in the study. Prior research has indicated high levels of participation refusal in youth in RTFs especially when asked to sign informed assent (e.g., Hunter Jr & Figueredo, 1999). Youth could provide informed consent to treatment without providing informed assent to participate in the study. If a participant denied assent, their data was excluded from the study but monitored for clinical treatment progress within the program only. Although participation in the underlying PSB program was mandatory, it was emphasized to youth that TF-CBT treatment was optional. However, it is possible that many youth a use they still felt that it was necessary to comply with therapist recommendations to progress through the program more quickly.

Therapists were also successful in completing trauma screenings with youth. Although increased training conditions may have facilitated better screening results, organizational factors may have also helped. Since the program's inception, screening and assessment of youth has been a priority. Before TF-CBT implementation, however, screening and assessment had primarily been performed by trained research assistants. Therapists in the RTF had not been uniformly trained or supervised in the administration of assessment screening measures such as the UCLA PTSD-RI. Nonetheless, program factors—including a strong history and program culture of screening and assessment, the established supportive infrastructure, and supervisory support and ongoing training—likely contributed to successful completion of trauma screenings.

Overall, therapists were able to initiate and complete TF-CBT within expected treatment parameters. In general, in the current study, therapists started TF-CBT with their clients after a positive trauma screening was obtained—except when serious, intervening behavioral or clinical concerns were present. In contrast, Cohen et al. (2016) found that many TF-CBT therapists in RTF did not begin TF-CBT with their clients after screening. These results may have been attributable to unique programatic factors. The program has an established infractructure that likely facilitated the initiation of treatment. Assessment coordinators and treatment administrators in the program provided high levels of administrative and supervisory support to facilitate screening, assessment, and treatment. After screening, results were reviewed by the treatment director who assigned positively screened youth to TF-CBT therapists. TF-CBT cases were staffed, reviewed, and monitored at regular group and individual consultations by the certified site supervisor, and, often, the expert consultant. Therapists were also reminded by the site supervisor and assessment coordinator when follow-up assessments were required. On average, therapists completed TF-CBT with participants in approximately 24 sessions, which was within the treatment fidelity standards noted in prior studies in RTFs (Cohen et al., 2016). The slightly greater number of sessions found in this sample may reflect treatment delays due to engagement difficulties, serious emotional disturbance, disruptive behaviors, institutional infractions, or confinement periods that frequently impact treatment with AISB in this setting. There was considerable variability in the number of sessions spent focusing on different TF-CBT components across therapists. In the current study, slightly more time was spent in later stages of treatment reflecting the later TICE models: namely: Trauma narration and cognitive processing, In-vivo exposure, Conjoint parent-youth sessions, and Enhancing safety. Notably, the most time was spent on the trauma narration component. Relatedly, caregiver involvement was highly variable across therapists, which was expected due to the external barriers to caregiver engagement in RTF. Holding face-to-face sessions with caregivers of youth in the RTF was challenging due to a number of external barriers at the organizational/systemic level. External barriers included logistical problems with scheduling sessions and distance. Therapists were encouraged to conduct conjoint and parenting sessions by phone if face-to-face sessions were not an option; yet, often this treatment barrier was often difficult for therapists to overcome. Other studies have permitted alternative solutions— including secure video conferencing and participation of RTF staff—to address these barriers, but these workarounds were not available in this RTF.

Another potential organizational barrier was the disparity in workload and incentives experienced by participating therapists. Therapists in the current study were required to take TF-CBT cases in addition to their usual treatment case load. Regular TF-CBT consultation sessions were provided in addition other treatment- and program-related meetings. As a result, taking a TF-CBT case involved—at various levels—additional required work without incentives. This situation has been suggested as an implementation barrier in other studies (Cohen et al., 2016). To address these concerns, program administrators provided participating therapists with additional training and supervision that—despite demanding more time—may have provided more opportunities for peer support and supervision. Initial and ongoing support by program administrators also may have facilitated continuing motivation for participation in the program. As implementation continued, program administrators continued to fund training opportunities for therapist participants after grant-funded opportunities were exhausted. Although clinical data was not collected to tease these reasons apart, the high levels of therapist participation may be attributable to a shift in organizational culture where the completion of TF-CBT training and participation in the program began to shift from optional to expected.

In the current study, there were few between-group differences across white participants and minority-status participants in terms of trauma endorsement. Fix, Falligant, Alexander, and Burkhart (2017) found that white youth in RTF are more likely to experience childhood sexual abuse than black youth within RTFs. Notably, results from the current study also suggest white AISB are more likely to report unwanted sexual contact (and less likely to experience physical assault) compared to youth from other racial/ethnic groups. Given that trauma-informed clinical service delivery requires a commitment to evidence-based practice that is compatible with diverse clinical populations (Ko et al., 2008), future research should also further assess best practices for delivering TF-CBT within diverse clinical populations including females) in RTFs.

Notably, the lack of a control or comparison group and female participants in the current study highlights the need for continued, rigorous research to further establish the efficacy of TF-CBT with AISB

in secure settings. That is, it is unknown if changes in scores on the UCLA-PTSD-RI, BASC-2 SRP-A, and MACI occurred as a result of treatment or by other mechanisms, such as regression to the mean. Indeed, the overarching purpose of the current project was to evaluate the feasibility of TF-CBT implementation within this unique treatment context and report preliminary clinical outcomes as a proof of concept.

It is unclear how specific demographic characteristics, such as the age of the juvenile at the time of the index trauma, or the amount of time that had elapsed between the index trauma and the onset of TF-CBT, influence treatment efficacy. It is also unknown if TF-CBT enhances the effectiveness of concurrently implemented treatments for illegal sexual behavior, particularly if ongoing behavioral concerns are disruptive or detract from therapy. Indeed, multiple therapists reported that skills gained from TF-CBT—especially PRAC modules—were helpful in subsequent treatment for illegal sexual behavior. Given the increased incidence of physical abuse, sexual abuse, and other adverse life experiences found among AISB (e.g., Seto & Lalumière, 2010), successful dissemination and implementation of trauma-informed treatment for these youth—especially those in RTFs— is critical. Preliminary results from the current descriptive study suggest TF-CBT may be a viable treatment option for AISB within secure treatment settings. However, additional research in this area is required to better understand important organizational, methodological, and idiographic variables related to optimal clinical service delivery and treatment outcomes.

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Declarations of interest

None.

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