ORIGINAL ARTICLE

Feasibility and Acceptability of a Trauma-informed Intervention to Leverage Caregivers in Preventing Opioid Use Among Youth Involved in the Legal System

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Abstract

Youth in the legal system (YILS) report high rates of substance use (SU), complex family/social relationships, and chronic trauma. The current study tested the feasibility of a prevention intervention, Trust-based Relational Intervention® (TBRI®), that leverages family systems by strengthening connection and providing emotional and instrumental guidance and support. TBRI includes the *primary TBRI Intervention*, comprised of Caregiver Training, Youth Training, and joint youth-caregiver Nurture Groups, and *TBRI Family Coaching*. With a sample of eight youth-caregiver dyads, the study adopted a mixed-methods design with a multi-informant approach to fulfill two goals: (1) testing TBRI as a prevention intervention for opioid use (OU), other SU, and related issues, and (2) testing the feasibility and acceptability of the TBRI Intervention by virtual delivery. Session attendance and completion rates demonstrated feasibility of recruiting and retaining participants and intervention fidelity. Preliminary results were reported on intervention outcomes, including OU and other SU, illegal activities, and educational attainment. Pre- and post-intervention comparisons showed decreases in youth negative urgency, conduct problems, and hyperactivity. Caregiver and staff participants responded favorably to TBRI and its virtual delivery; youth were more capable of expressing their needs and acknowledged the importance of families in preventing problems after discharge from secure facilities. While acknowledging sufficiency of intervention content, caregivers expressed the desire for more sessions. Results demonstrate the feasibility and acceptability of a trauma-informed, attachment-based prevention intervention for youth and families in contact with the legal system. TBRI is a promising approach for preventing the initiation or escalation of OU among YILS.

Keywords Trust-based Relational Intervention (TBRI) · Feasibility and Acceptability · Prevention Intervention for Opioid use · Youth in the Legal System

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Introduction

The recent rise in opioid use (OU) and accidental overdose deaths among youth in the US is a significant cause for concern. Recent data indicate that 1.6% of adolescents ages 12–17 and 4.1% of young adults ages 18 to 25 misused opioids. This highlights the transition from adolescence into young adulthood being a key developmental period for preventing opioid misuse (Substance Abuse and Mental Health Services Administration, 2021). Overdose rates among the adolescent group are rising (94% increase from 2019 to 2020 and 20% from 2020 to 2021; Friedman et al., 2022). Because youth involved in the legal system (YILS) are at even greater risk for OU (Vaughn et al., 2015) compared

to adolescents in the general population, it is imperative to develop and test strategies to prevent initiation and escalation among YILS. Because most of YILS with OU use other substances and prevention strategies are applicable to all substance use (SU) (Funk et al., 2020), the current study focused on OU being the primary prevention outcome and other SU as secondary prevention outcomes.

Trauma-informed Care in the Legal System

Etiology and epidemiology research indicates that trauma is one of the prominent risk factors to SU (Stein et al., 2017; Substance Abuse and Mental Health Services Administration, 2020). Therefore, trauma-specific interventions are an important component in prevention interventions for SU. Trauma-specific interventions vary in the approaches and objectives (Center for Substance Abuse Treatment, 2014). One option is trauma-focused cognitive behavioral therapy, which includes three distinct phases: an initial coping skills-building phase, a second trauma narrative and processing phase, and a final treatment consolidation and closure phase (Cohen et al., 2012). Exposure therapy and eye movement desensitization and reprocessing (EMDR) are options for individuals with traumatic experiences (Center for Substance Abuse Treatment, 2014). While trauma-focused therapies can be beneficial for YILS and may improve youths' affective symptoms, the application of these options for YILS is limited (Moreland & Ressler, 2021) and the existing empirical evidence is inconclusive or minimal for SU, delinquency, or other related intervention outcomes (Olaghere et al., 2021), underscoring the importance of a system-level effort in implementing these approaches Trauma-focused interventions focus on the association of trauma to thoughts and behavioral patterns, typically delivered during therapy sessions by clinical staff on a weekly basis. Given the service provision for YILS is involved with a multidisciplinary team, it is instrumental to make agency-wide efforts and establish a broader trauma-informed care (TIC) approach to integrate key trauma principles into the organizational culture within the legal system (Baetz et al., 2021; Cutuli et al., 2019; Substance Abuse and Mental Health Services Administration, 2014a).

Fortunately, there has been a noticeable, positive shift toward TIC in some aspects of the legal system or juvenile justice (JJ) settings as agencies seek to address youth needs (e.g., mental health (MH), general functioning) and risk of recidivism. Because a high prevalence of YILS report experiencing trauma (e.g., one-third reporting exposure to multiple types of trauma each year; Dierkhising et al., 2013) and such experiences shape children's emotional and behavioral responses to events and stimuli (Perry, 2003), incorporating trauma-informed (TI) approaches into the legal system is essential (Folk et al., 2021). TI models emphasize building strengths, establishing safety, and teaching self-regulation skills in lieu of punishment and retribution (Griffin et al., 2012). Examples include stakeholders' encouragement for adopting TI approaches (Baetz et al., 2021) and inclusion of trauma in risk-needs screening and assessment (e.g., MAYSI; Shulman et al., 2016). In practice, however, most JJ agencies have not yet developed or implemented strategies to systematically and routinely address complex trauma in daily interactions and treatment planning (Zettler, 2020).

Trust-Based Relational Intervention® (TBRI®)

TBRI is an attachment-based model of care for children and youth who have experienced trauma (Purvis et al., 2013). TBRI is composed of three sets of TI principles: *Connecting*, *Empowering*, and *Correcting*, aligning with the three pillars of TIC: (1) promotion of connection or healing relationships, (2) development of safety (perceived physical and emotional safety), and (3) development of emotion regulation (Bath, 2008). The *Connecting Strategies*, *Engagement* and *Mindful Awareness*, promote healing relationships by teaching caregivers to engage with youth in playful, healthy ways, and to practice self-, other-, and situational awareness in order to identify and meet youth needs. The *Empowering Strategies*, *Physiological* and *Ecological*, promote feelings of safety by teaching caregivers to help youth feel safe in their bodies (e.g., nutrition, hydration) and in the world (e.g., routines, transitions). The *Correcting Strategies*, *Proactive* and *Responsive*, disarm fear-based behavior by teaching caregivers to help youth identify needs, recognize and regulate emotions, and respond appropriately.

Originally developed as a set of practice principles for use with foster and adopted children participating in a therapeutic day camp (Purvis et al., 2013), TBRI has since been applied in a range of contexts and service settings, such as adoption preservation (Howard et al., 2014), congregate care (Purvis et al., 2012), and residential treatment (Purvis et al., 2014). The most widely-available TBRI curriculum is the evidence-based training program called TBRI Caregiver Training. A study with a randomized design showed that children whose adoptive parents attended TBRI Caregiver Training showed decreased behavioral problems and trauma symptoms and increased prosocial behavior (Purvis et al., 2015). The TBRI Caregiver Package has been adapted to include a self-paced online training (Razuri et al., 2016) and adapted for Rwandan lay social workers supporting adoptive parents as part of a country-wide deinstitutionalization initiative (Hunsley et al., 2022). Research aimed at exploring the effectiveness of TBRI is ongoing. The *Preventing Opioid Use Among Justice-Involved Youth as They Transition to Adulthood: Leveraging Safe Adults* (LeSA) project

(Knight et al., 2021) extends the application of TBRI to JJ settings and adapts the curriculum for parents of adolescents, incorporates a companion curriculum for youth, and provides opportunities for youth and their caregivers to practice skills (e.g., playful interaction, regulation, seeing and meeting needs; Razuri et al., 2024). The adapted TBRI intervention encompasses a *primary TBRI intervention* delivered while youth are in residential facilities and an in-home coaching component designed to support youth and caregivers as youth transition home. Aligned with the TI principles, caregivers and youth are trained to build trust, practice authentic communication, develop boundaries, and set realist expectations in order to proactively and effectively identify, express, and address youth needs. In addition, youth learn and practice self-regulation, which would help youth refrain from opioid use, other SU, and risky activities (Knight et al., 2021). Because YILS often have used substance prior to entering the legal system (Funk et al., 2020), TBRI is conceptualized as a selective (serving people with enhanced vulnerability or increased likelihood for symptoms), indicated (serving people already experiencing symptoms) prevention intervention in this project (Substance Abuse and Mental Health Services Administration, 2014b). The ultimate goal of LeSA is to test the effectiveness of the adapted TBRI curricula in preventing the initiation and escalation of OU, other SU, and related psychosocial and behavioral problems (Knight et al., 2021).

Current Study

The current study is a pilot test of the feasibility and acceptability of the adapted TBRI intervention with a small sample of youth-caregiver dyads recruited from two JJ residential facilities. Because this study was completed during the COVID-19 pandemic, study protocols were further adapted to accommodate the restriction of in-person interactions. The specific goals include (1) assess the feasibility and acceptability of TBRI content and virtual delivery format and (2) compare pre- and post-intervention data to provide preliminary evidence on TBRI's potential as an OU prevention intervention.

Materials and Methods

Study Design

A mixed-methods observational study design was used to fulfill the aforementioned study goals. This study adopted a multi-informant approach in data collection, comprised of youth and caregiver assessment, caregiver interview, staff interview, and interventionist session notes. Quantitative

data included youth and caregiver baseline, post-intervention, and six-month post-discharge follow-up assessments. Qualitative data included semi-structured interviews with caregivers and pilot site staff. Interventionists session notes provided documentation about intervention feasibility and acceptability. The study was approved by the authors' Institutional Review Board.

Procedure

Participants were recruited from two JJ facilities in a Southwestern state in the U.S. One site (Site 1) was a private-owned facility providing services to YILS across the state with a yearly census of 55 youth (stay ranging between 9 and 12 months). The other site (Site 2) was a long-term residential program in a local juvenile probation department that provides services for youth from within the county, with a yearly census of 24 youth (average of 9-month stay). Standard treatment provision at both sites includes individual therapy, family therapy, and case management. Based on the intake planning, youth may be offered anger management, substance use treatment, and various additional services and activities (e.g., musical therapy, culinary classes).

Eight families (four per facility) were identified as meeting the study eligibility criteria by facility MH staff. Eligibility criteria included (1) YILS disposed to community supervision and receiving care in a secure JJ facility, (2) release date within three months, (3) without active suicide risk, and (4) with one caregiver (e.g., legal guardians, relatives) willing to co-participate in the study. Because TBRI is deemed a selective, indicated prevention intervention (Substance Abuse and Mental Health Services Administration, 2014b), all youth with a SU history or considered at risk for SU (which includes all YILS) were included. Facility staff presented the research opportunity to eligible families and, upon families' agreement, introduced the LeSA team to families. All caregivers provided informed consent for their own and their youth's participation, followed by youth assent (see Fig. 1).

Participants were eight youth-caregiver dyads, comprised of eight JJ youth (seven males; age of 14–17 at the time of recruitment) and eight caregivers (all female; age of 34–62 at the time of recruitment). All families agreed to participate. Three (37.5%) youth self-identified as Caucasian, two (25%) African American, and three (37.5%) more than one race. Four (50%) caregivers self-identified as Caucasian, two (25%) African American, and two identified as (25%) other. Regarding ethnicity, one youth and one caregiver self-identified as Hispanic; the caregiver was a Spanish speaker and the youth was bilingual. Five (62.5%) youth were charged with substance-related and violent offenses, one (12.5%) was charged with substance-related offense only,
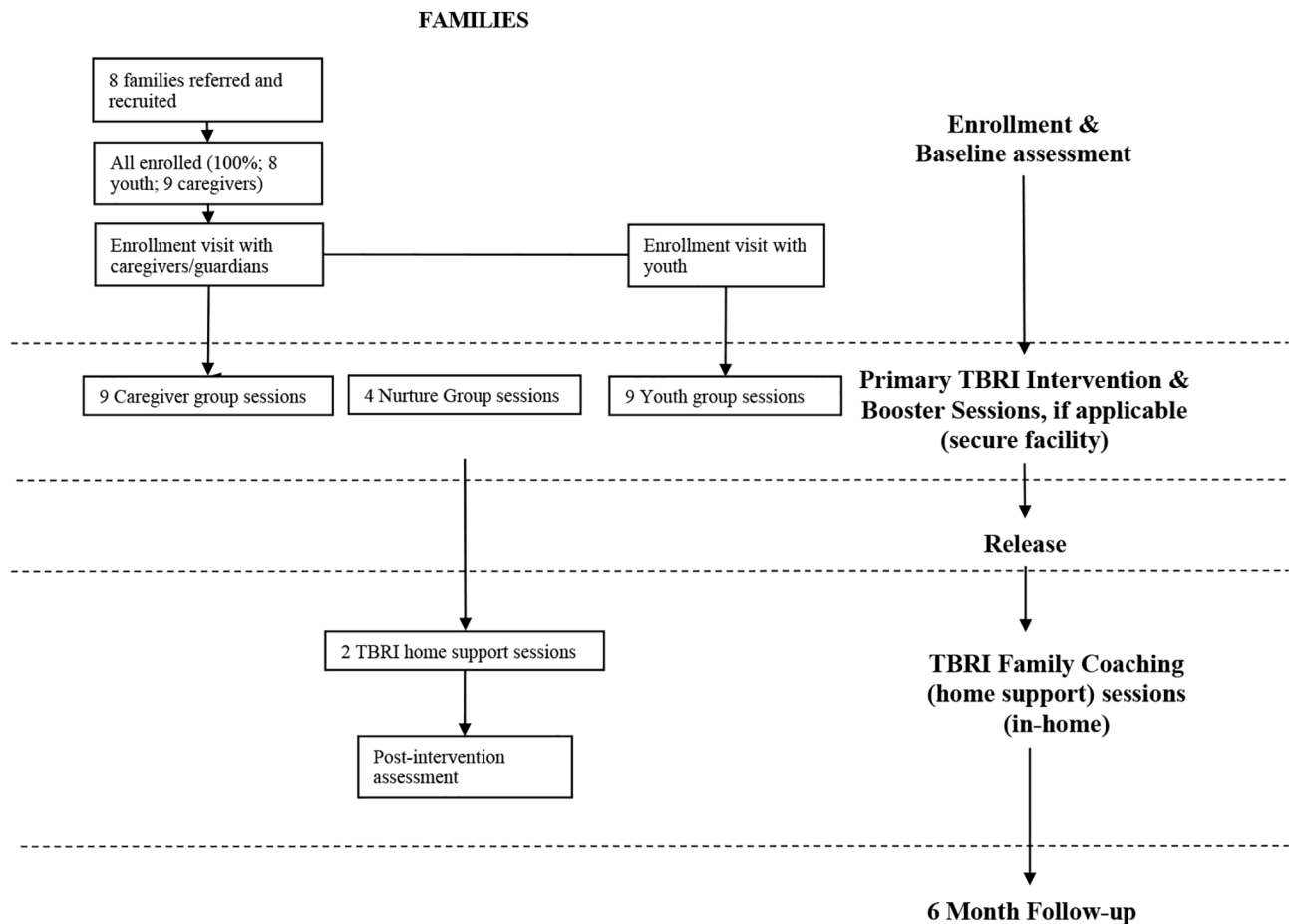
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Fig. 1 Flowchart of study procedure

and two (25%) were charged with violent offenses only. The average length of stay for the youth participants was 10.25 and 11.25 months for each of the two sites, respectively. All youth participated with the biological ($n=4$, 50%) or adoptive mother; one family also included the biological grandmother in intervention sessions and post-intervention semi-structured interview (but not in assessments). Six youth were released to the caregiver who participated in the LeSA project. One was released into the foster care system. As of last follow-up, the remaining youth was still detained in the residential facility because a court-ordered change on the treatment plan. Five families had a single caregiver; three families had two caregivers in the household. Each participant received a gift card in the amount of $15 per assessment (up to $30 in total).

The TBRI intervention consisted of a *primary TBRI intervention*, delivered while youth were in residential facilities, and *TBRI Family Coaching (home support)* sessions delivered after youth returned to the community (Knight et al., 2021). The *primary TBRI intervention* consisted of three components: group sessions for caregivers utilizing

the TBRI Caregiver Training Curriculum (14.5 h in total), group sessions for youth utilizing the TBRI Youth and Young Adult Curriculum (eight hours in total), and joint caregiver-youth sessions utilizing TBRI Nurture Group protocols (four hours; see Table 1). All trainings were designed to be delivered in groups with 3–5 families per group. The interventionists (hereafter referred to as TBRI facilitators in the context of session delivery) were two TBRI Practitioners, both licensed clinicians with more than 10-years of clinical experience. TBRI *Family Coaching* sessions were delivered in-home after completion of the primary intervention, serving to facilitate youth transitioning to the community. In the pilot study, families were offered two home support sessions (two hours in total), provided by the lead TBRI facilitator. Some youths' release dates were unexpectedly extended and they were therefore provided with additional monthly booster family sessions (Nurture Group) until their release. The Spanish-speaking caregiver was provided with intervention materials in Spanish; the assessment and intervention sessions were conducted by the lead TBRI

Table 1 Overview of piloted TBRI curricula and session attendance

Intervention Component	Format/Participants	Delivery	Site 1 (n=4)		Site 2 (n=4)		Fidelity
			Completion Rate (%)	Mean (SD)[a]	Completion Rate (%)	Mean (SD)	Mean (SD)[b]
Primary TBRI Intervention							
Caregiver Curriculum	Group skills training with caregivers	9 sessions/90 minutes *Concurrent with Youth & Young Adult Sessions*	100	9	89	8.00 (1.73)	3.77 (0.15)
Youth & Young Adult Curriculum	Group skills training with youth	9 sessions/45 minutes *Concurrent with Caregiver Curriculum*	100	9	100	9	3.50 (0.20)
Nurture Groups [c]	Joint-roleplay Group activities with caregiver-youth dyads	4 sessions/1 hour *Follows Youth & Young Adult Sessions 2, 4, 6, & 8*	88	3.50 (0.87)	81	3.25 (0.43)	4
Secondary TBRI Intervention							
In-home Coaching Curriculum [d]	In-home coaching with caregiver-youth dyads	2 sessions/1 hour	100	2	50	1.00 (1.00)	4

Note. [a] Standard deviation (SD) was not available for components with 100% completion

[b] Fidelity: A 4 point was the highest possible score. Standard deviation (SD) was not available with a score of 4

[c] At Site 1, three (out of 4) Nurture Groups sessions were offered and delivered. The last Nurture Group was canceled due to COVID-related restricted contact and movement. The site-level completion rates were determined by dividing the total number of completed sessions across all families by the total number of sessions delivered at each site

[d] Two (out of 4) families in each site were eligible for in-home coaching. For the two families in Site 2 that were eligible, one family completed the in-home coaching

TBRI Practitioner Qualification: Professionals are trained by the TBRI developers in two phases, comprised of the asynchronous Phase 1 consisted of readings, online videos, and quizzes, and the synchronous Phase 2 including a 40-hour (week-long) training, to become TBRI Practitioners

facilitator, assisted by a Spanish translator who was also a TBRI Practitioner.

Recruitment started at the beginning of the COVID-19 pandemic when in-person research activities were restricted. Thus, modifications were made to the study protocol to facilitate recruitment and intervention delivery: (1) converting all intervention sessions online; (2) modifying intervention activities for online delivery (Razuri et al., 2024); (3) mailing intervention materials; (4) coordinating with agency therapeutic staff for room set-up, distribution of supplies, and other research related activities; and (5) offering additional assistance to participants (e.g., Zoom set-up) and study sites (loaning equipment). The research team discussed and addressed issues around virtual delivery on a weekly basis throughout the pilot study and made further adaptation to the study protocol. Key elements derived from these meetings include (1) the addition of a "Module 0" specific to virtual delivery, (2) innovative ways to engage youth across screens (e.g., youth hold up colored props to give visual feedback), and (3) development of strategies for TBRI facilitators on how to build felt-safety in a virtual setting.

All research activities were conducted virtually and participants were required to have an internet and webcam-connected device from a safe, secure place where they were comfortable disclosing private, confidential information. All caregivers participated from their home. For assenting and baseline assessment, each youth participated from a private room (e.g., a therapy room) with a therapeutic staff member present for safety and security reasons. For intervention sessions, youth participated in groups from a classroom-type space. Per site guideline, a therapeutic staff member was also present in the session room for security reasons. For post-discharge assessment and intervention sessions, both caregivers and youth participated at home. All activities were conducted in Zoom (by default) or Microsoft Teams (requested by Site 2).

Measures

The feasibility of TBRI as a prevention intervention was assessed by baseline and post-intervention quantitative assessments and post-discharge six-month follow-up assessment. Feasibility was evaluated by (1) the rate of recruiting and retaining participants in intervention, (2) key stakeholders' perceptions on the feasibility and acceptability of TBRI, and (3) the TBRI facilitators' session notes. Fidelity of the intervention was based on rates of intervention completion and the accomplishment of key activities in each session rated by the lead TBRI facilitator on a 4-point scale (1 = *not at all*, 4 = *thoroughly*).

Baseline and post-intervention assessments (see Table 2 for items completed by youth and caregivers, respectively) were conducted with both youth and caregivers via computer-assisted virtual interviews. The outcome included youth OU (primary) and other SU (secondary), assessed by the TCU Drug Screen 5 with Opioid supplement (Institute of Behavioral Research, 2020), corroborated by the HEAL Prevention Substance Use Involvement (Ridenour, 2020). Additional secondary outcomes included putative change mechanism in self-regulation (assessed by the TCU THK scale; Institute of Behavioral Research, 2010; delayed discounting, Moore & Cusens, 2010), psychosocial functioning, youth/caregiver relationships, and parenting strategies. Psychosocial functioning was measured by the Strengths and Difficulties Questionnaire for youth (Goodman, 2001) and the PROMIS Anxiety and Depression (Schalet et al., 2016). Youth-caregiver relationships were assessed by the TCU FFS Form (Simpson & McBride, 1992), the Family

Table 2 Assessment at baseline and post-intervention

Construct and Instrument	Youth			Caregiver		
	Baseline (n=8) M(SD)	Post-intervention (n=6) M(SD)	Wilcoxon test Z	Baseline (n=8) M(SD)	Post-intervention (n=7) M(SD)	Wilcoxon test Z
SU: TCU DS	6.88(4.79)	1.67(2.88)	-1.76	0.00(0.00)	0.00(0.00)	-
Youth self-regulation						
THK NUY	38.13(7.17)	26.25(5.42)	**-2.00***	-	-	-
THK PUY	33.13(8.21)	26.25(9.32)	-1.57	-	-	-
THK CPDU [a]	30.31(2.81)	30.50(12.30)	-0.68	-	-	-
DD +	4.63(4.63)	4.83(5.56)	-1.19	-	-	-
Psychosocial functioning						
SDQ Emotional Problems	4.38(1.60)	2.33(2.25)	-1.17	5.83(0.75)	5.50(1.52)	-0.54
SDQ Conduct Problems	7.13(2.23)	3.17(1.60)	**-2.03***	6.67(3.14)	6.60(2.51)	-0.82
SDQ Hyperactivity	7.38(1.69)	3.67(1.97)	**-2.23***	9.20(1.30)	6.00(2.00)	-1.32
SDQ Peer Problems	4.00(1.60)	4.00(2.19)	-0.18	4.33(2.34)	7.57(2.51)	-1.63
SDQ Prosocial +	6.75(1.04)	6.17(3.06)	-0.55	6.17(2.64)	6.00(2.76)	-0.82
Anxiety	2.13(0.50)	1.96(1.05)	-0.81	17.00(1.41)	12.40(4.16)	-0.53
Depression	1.28(0.36)	1.58(1.02)	-0.45	10.17(2.14)	13.50(3.78)	-0.42
Youth/Caregiver Relationship						
FAD-AR +	2.69(0.52)	2.37(0.40)	-0.73	2.83(0.41)	2.83(0.40)	-0.14
ECR– General AVO	3.69(1.14)	3.36(0.52)	-0.14	3.75(0.57)	3.61(1.17)	-0.92
ECR– General AX	4.05(1.88)	3.94(1.34)	-0.14	3.06(1.24)	4.17(2.64)	-1.07
ECR–Primary Caregiver/ Child AVO	4.48(1.23)	3.40(0.85)	-1.21	3.90(1.15)	2.90(1.08)	-0.73
ECR–Primary Caregiver/ Child AX	2.65(1.24)	3.73(1.44)	-1.76	2.67(0.94)	3.29(2.70)	-1.07
FFS – FW +	36.50(12.64)	32.67(10.41)	-0.54	39.33(8.07)	40.29(4.54)	-0.13
FFS – FCL	36.50(7.23)	32.40(1.67)	-1.46	35.20(5.02)	28.67(3.93)	4.00
FFS – FC	30.63(12.87)	31.50(8.59)	0	27.08(10.42)	26.67(12.61)	0.83
ACEs [b]	4.25(3.33)	-	-	3.14(1.68)	-	-
Parenting						
PMI +	-	-	-	4.83(0.17)	-	-
TBRI Parenting [c+]	-	-	-	3.97(0.50)	4.74(0.30)	-1.60

Note: SU: TCU DS=Substance use: TCU Drug Screen 5 with Opioid Supplement, TCU THK- NUY and PUY=TCU Adolescent Thinking Forms-Negative and Positive Urgency Scales, TCU THK CPDU=Control over Drug Use Scale, DD=Delayed Discounting Task, SDQ=Strengths and Difficulties Questionnaire, Anxiety=Patient-Reported Outcomes Measurement Information System (PROMIS)- Anxiety Scales, Depression=Patient-Reported Outcomes Measurement Information System (PROMIS)- Depression Scale, FAD -AR=Family Assessment Device - Affective Responsiveness, ECR-RS=Experiences in Close Relationships – Relationship Structures, ACEs=Adverse Childhood Experiences, PMI=Parent Motivation Inventory; The ECR-General reflects the youth's general attachment (AVO=avoidance; AX=anxiety) and the caregiver's attachment specific to their youth in the study, while the ECR- Primary Caregiver/Child reflects the youth's attachment to their caregiver in the study and the caregiver's attachment to the youth of LeSA; FFS – FW=Family Friends, and Self Form – Family Warmth; FFS – FCL=Family Control; FFS – FC=Family Conflict. [a] Five youth completed TCU THK-CPDU; [b] One youth and one caregiver (12.5%, respectively) did not report any ACEs. One (12.5%) youth and two (25%) caregivers reported one ACE. One youth (12.5%) and two (25%) caregivers reported two ACEs. Five youth (62.5%) and four (50%) caregivers reported four or more ACEs. [c] Six caregivers completed TBRI Parenting Assessment. *p < .05. Wilcoxon=Wilcoxon signed-rank test. + A higher score indicates better functioning. A higher score for the remaining variables indicates worse functioning

Assessment Device - Affective Responsiveness subscale (Epstein et al., 1983), and the Experiences in Close Relationships – Relationship Structures (ECR-RS; Fraley et al., 2011). Parenting strategies were assessed by the TBRI Parenting Assessment. Predictors and covariates included background information, caregiver SU history, caregivers' relationship with their own caregiver, Adverse Childhood Experiences for both youth and caregivers themselves, respectively (Murphy et al., 2014), caregiver motivation in treatment participation (Parent Motivation Inventory; Nock & Photos, 2006), and caregiver strain (Caregiver Strain Questionnaire; Brannan et al., 1997). With the exception of psychological functioning which focused on current status, baseline assessments captured data prior to youth detention to reflect youth functioning when you were living in the community.

Post-discharge Six-month Follow-up Assessment was conducted to assess short-term outcomes. Each youth was asked to report updates on OU and other SU and any involvement in illegal activities. Both youth and caregivers were asked to report updates on youth-caregiver relationships, use of TBRI strategies, and other youth developmental outcomes (e.g., education).

The feasibility of recruiting and retaining participants was evaluated by intervention attendance and rates of intervention completion (see Table 1). Feasibility and acceptability of the intervention was assessed by semi-structured interviews with caregivers. Youth participants were also invited to participate in a semi-structured interview, but as only one youth participated in the interview, it was not included in the analysis. Because site staff were involved in coordinating research activities and assisting in intervention delivery, they were also invited for qualitative interviews to solicit their thoughts about TBRI implementation in JJ settings. Session notes were documented by TBRI facilitators on areas of or factors related to intervention delivery, engagement in intervention sessions, and acceptance of intervention content.

Analysis

A mixed-methods data analytic approach (Jang et al., 2008) was used to examine the feasibility of TBRI as a prevention intervention for YILS and obtain an in-depth understanding of factors hindering or contributing to the feasibility and acceptability of TBRI. For quantitative data, descriptive statistics were used to describe SU, psychosocial functioning, youth-caregiver relationships, family background information, session attendance, and session completion rates. Wilcoxon signed-rank tests were used to compare pre- and post-intervention measures.

Qualitative data include six, one-hour semi-structured interviews: two individual caregiver interviews, one caregiver focus group ($n=2$ from the same family), two staff focus groups ($n=2$ in Site 1, $n=3$ in Site 2), and one staff individual interview (from Site 2). All interviews were audio recorded and professionally transcribed. The qualitative team was comprised of five qualitative researchers, supervised by a Ph.D. level mixed-methods researcher. Thematic analysis with consensus coding (Nowell et al., 2017) was adopted to code and analyze transcripts. The coders coded the transcripts independently using a start-list of codes derived from the interview guides, but they also immersed themselves in the data and continually re-visited emerging codes from the transcripts until new codes stopped emerging. Each transcript was coded by at least two coders through an iterative process during which coders met every week to compare inter-coder reliability and debrief until reaching a consensus on the coding. Next, coders re-immersed themselves into coded transcripts and generated themes pertinent to factors associated with feasibility and acceptability of the intervention. Two TBRI facilitators completed a total of 122 entries of session notes for intervention fidelity, including 69 for Youth & Young Adult sessions, 15 for Caregiver sessions, 32 for Nurture Groups, and 6 for Family Coaching sessions. Two graduate-level coders immersed themselves in session notes and extracted prominent themes pertinent to intervention delivery.

Results

Feasibility of Recruitment and Retention

All eight families referred by the study sites agreed to participate. The session completion rates and average number of completed sessions are presented in Table 1. Overall, the completion rates for the *primary TBRI intervention* ranged from 81% to 100%; the completion rate for the *TBRI home visit sessions* was 75% (ranging from 50% − 100%). One caregiver completed 5 (56%) caregiver group sessions and withdrew from the remaining 4 (44%) sessions because of other family priorities (e.g., living conditions). Three families in Site 1 completed all 4 Nurture Groups; the last family completed 2 sessions (50%) because of unstable living conditions. Three families in Site 2 completed 3 Nurture Groups; the last session was cancelled due to COVID-related restricted contact and movement. One family was able to complete all four Nurture Groups because of the youth's extended stay. Out of two eligible families, one completed two monthly booster sessions and the other family did not participate in booster sessions because of scheduling issues.

Four families (two in each site) were eligible for *TBRI Family Coaching*. Two families in Site 1 and one family in Site 2 completed the two scheduled *home support* sessions; one family in Site 2 declined to participate because of other family priorities. Ineligibility included extended release date ($n=1$), youth being released into foster care ($n=1$), caregiver medical reasons ($n=1$), and unstable living conditions ($n=1$). Overall, several families experienced barriers that impeded their ability to attend intervention sessions, including loss of stable housing during the study ($n=1$), conflicts with other family members or having other family priorities ($n=3$), and medical conditions ($n=1$). The lead TBRI facilitator reported a high degree of accomplishment of the key activities in each of the TBRI components (see Table 1). The primary reason for not achieving the full degree of fidelity was because participants were so engaged with session content and activities that they did not have sufficient time to finish all key session components.

Pre-Intervention Assessment and Intervention Outcomes

The descriptive statistics are reported in Table 2. The primary intervention outcome is the initiation and escalation of OU and other SU. At baseline, six youth reported severe SU disorders (TCUDS ≥ 4) during 12 months prior to coming to a residential facility. Three youth used opioids; two of them experienced opioid overdose but neither received Narcan. At post-intervention, none of the youth reported OU. Two youth reported mild SU disorders (TCUDS = 3). One of these two youth did not report SU at baseline assessment but initiated use of alcohol, cannabis, and CBD Vape at post-intervention assessment. The other youth used a variety of substances (including opioids) at baseline but this youth reduced the range of substance choices (alcohol, cannabis, and CBD Vape) and the severity of SU at post-intervention. Another youth reported use of alcohol, cannabis, and hashish at pre-intervention but reported drinking alcohol only a few times at post-intervention (TCUDS = 0). The rest of the youth did not report any SU. The two youth with prior gang affiliation reported that they had not rejoined their gangs despite pressure to do so. One youth (turned 18 soon after discharge) returned back to his old peers upon release and was not working. Two youth entered high school, one entering college, three graduated from high school (or obtained GED) and had full-time employment. The last youth was furloughed home to the mother and attended high school in the community. Each of the eight families reported better communication and youth-caregiver relationships. All families also reported sustained use of the TBRI skills and strategies, with four families providing concrete examples (e.g., one youth applied his TBRI knowledge while interacting with

his younger sibling). The results of Wilcoxon tests showed a significant decrease in youth negative urgency ($p=.04$), conduct problems ($p=.04$), and hyperactivity ($p=.03$). There were no significant differences in other variables.

Qualitative Findings

Qualitative analyses were conducted on caregiver and staff interviews separately, followed by a descriptive summary of overlapping themes between these two sets of interviews. The qualitative analysis revealed three themes for caregiver and staff interviews, respectively.

Caregiver Theme 1 is the *overall perception of feasibility and acceptability*. All caregivers were receptive to TBRI sessions. One caregiver stated that *"TBRI gave me hope."* All caregivers also stated that intervention content was sufficient but expressed the desire for more sessions. One caregiver said *"…the more sessions, the better…"* Another caregiver reported that TBRI interventions provided a safe, empowering environment encouraged them to learn how to help their youth address emotional and behavioral issues. Caregivers were highly engaged in intervention sessions. One caregiver said: *"I wanted a fighting chance. I wanted a learning chance. I wanted the responsibility to say, "I can do this."* Caregivers also observed youths' acceptance of the TBRI intervention. For example, one caregiver noticed a change in her youth as a result of participating in the intervention: *"…I see him smiling and then I see him going, "I'm making eye contact. Can you see me making eye contact?" I know that it stuck with him."*

Some caregivers experienced technology-related challenges (e.g., unfamiliar with the interface programs) during earlier sessions, but they were able to adapt to the format of virtual sessions with help from the TBRI facilitators and other family members. Despite initial technical challenges, caregiver participants were satisfied with the virtual format of intervention delivery. One caregiver reported the logistic convenience of virtual delivery.

As there was only one Spanish-speaking participant, one caregiver completed all sessions independently. The participant expressed acceptability of TBRI as did the English-speaking caregivers: *"it went very well. I loved it."* When prompted to provide suggestions on improving the intervention curricula for future Spanish-speaking caregivers, the caregiver stated that the TBRI facilitator and translator *"made it really easy"* for her and that she did not have any recommendation for improvement. However, she noted that an option for group sessions *"would be really good, actually, to have a lot of other parents, we could all learn things together."*

Caregiver Theme 2 is *"see the needs and express the needs."* and it reflected salient intervention content. *See*

the needs referred to caregivers understanding the complexity of trauma and recognizing needs underlying youth mental and behavioral issues. *Express the needs* meant that TBRI helped youth express their needs and helped caregivers respond to these needs. For example, one caregiver described her family as a dysfunctional system with multigenerations of SU and in need of parenting strategies: *"[The youth] has acted out at a higher level than any of the rest of us so far. [W]e were pretty much at loss of how to get him—how to rein him in and to save him."* TBRI helped her understand the link between trauma and emotional and behavioral issues in youth and she found the TBRI strategies useful. She said:

> *These are the kids that have gotten really lost. And, coming from that place of "this is a trauma … possibly in utero trauma" and educating the families to know that you didn't do anything wrong. …[T]he triangle (i.e., Connect, Empower, Correct) that said— no, really, this was so powerful.*

Caregivers noted that TBRI helped youth learn how to express their needs. For example, one caregiver elaborated: *"My son has opened up to me more where he had shut down and [TBRI facilitator] let him know, 'Oh, you're free to speak the way you feel, as long as you do it in the appropriate way'."* The same caregiver also acknowledged the importance of including TI components in youth treatment plans. *"… I hope that you guys keep it going because there's some kids … are pushed to the curb because they have a behavior. Nobody's really digging in their head to help them…"* Another caregiver reported that TBRI taught her how to recognize her youth's emotional states with a regulation tool and to interact with youth in a healthier way: *"Sometimes… you don't know where they are…so they let us know what they liked on the [self-regulation tool]… red zone, green zone, blue zone. And they knew what zone (i.e., emotional states) they were in."*

Caregiver Theme 3 is the *importance of family involvement.* Caregivers stressed the importance of including families in youth treatment. One caregiver said:

> *This is the missing piece. [TBRI was] educating us, and then this was the only time we were allowed to participate with his program was through this. I think the family should be intimately involved in this behavioral program. Because you send the kids back home to the same environment… So, you're intervening with the environment.*

Caregivers said that TBRI provided strategies for them to advocate for youth. One caregiver said *"… [what we learned in TBRI] began to empower us to speak up for him in a way that we hadn't before, because we felt that we were now part of the team and request information."*

Staff Theme 1 is *overall feasibility and acceptability of virtual delivery of TBRI.* Staff reported: *"…it's really working in the therapeutic realm as a whole. A lot of people are more likely to participate in therapy if they can do it 'cause just for the convenience."* Staff also mentioned that family visitation was restricted because of the pandemic, so caregivers were very motivated to participate in this research project because it allowed for more opportunities to meet with their youth: *"…[E]specially during COVID, for the parents and the kids to be able to have that time to do the nurture groups together exponentially just aided in these kids' treatment."* Staff also mentioned that being informed of the research progress and intervention targets (e.g., "crash course") would help coordinate the logistics and facilitate the delivery.

Staff Theme 2 is *positive changes in youth.* Staff from both pilot sites observed positive changes as a result of TBRI participation. One staff member said: *… [LeSA youth] were able to communicate their needs better…. So if I just saw them in the hallway they were able to tell me, "This is what I need."* Staff members who interacted with youth on a daily basis reported a positive change in youth-caregiver relationships. One staff said: *"I was just amazed at how… those relationships between the parent and the child were changing. … just seeing the kids just respond differently to the parents that they haven't talked to in, some of them, years."*

Staff Theme 3 is *an opportunity to engage families in youth treatment.* Staff reported that TBRI provided a unique opportunity to engage families in youth treatment. As a staff participant explained TBRI helped caregivers *"looking at things from a different perspective, taking responsibility for how they've contributed to their child's trauma."* Another staff member said: *"I can't think of anything that didn't really work well…I think it kind of helped bridge some gaps that we have a hard time bridging outside of the project".*

In summary, there are several overlapping themes between caregiver and staff interviews. Both caregiver and staff participants (1) substantiated feasibility and acceptability of TBRI contents and the format of virtual delivery; (2) reported that youth were more capable of expressing their needs post-intervention; and (3) acknowledged the importance of leveraging families in prevention intervention plans.

Session Notes

Independent review of TBRI facilitators' session notes revealed key feasibility and acceptability elements:

engagement in TBRI activities, increased expression of feelings, adoption of strategies for regulating negative emotions, use of strategies for positive communication, and noticeable behavioral changes in youth and caregivers. On multiple occasions, youth stated that they would miss the sessions when they concluded the intervention. The caregivers frequently expressed their enthusiasm for the intervention content and sessions as well. Furthermore, the TBRI facilitators observed facility staff utilizing and encouraging the use of TBRI strategies. Facility staff repeatedly mentioned seeing positive changes in the youths, which they directly attributed to participation in the intervention. Regarding the virtual format, TBRI facilitators reported active youth and caregiver engagement in the virtual intervention sessions. Youth attended intervention sessions together on one screen (as opposed to separate tiles) in one classroom-type space that was conducive to group activities. TBRI facilitators also reported that both sites had designated personnel who were able to troubleshoot and resolve technology-related problems (e.g., sound) quickly. It was helpful to understand technology capability of sites so that strategic plans can made to enhance youth engagement.

Discussion

Data from the current study document the potential utility of TBRI as a prevention intervention for YILS. Three of eight youth used opioids before the intervention, whereas none reported OU six months after intervention. While one youth initiated and one continued using alcohol, cannabis, and vaping after the intervention, the overall SU severity declined at post-intervention. All youth-caregiver dyads reported a strengthened youth-caregiver relationship post-intervention. Two of seven youth continued high school education, and one entered college. Three youth received a high school diploma or GED and secured full-time employment. These youths' school attainment surpassed JJ educational outcomes at the national level, where two thirds of youth do not return to school after release from confinement (Development Services Group, 2019). In addition, the preliminary comparison between pre- and post-intervention assessments revealed that youth reported lower negative urgency, less hyperactivity, and fewer conduct problems post intervention, which are consistent with the literature on TBRI's effectiveness in building and enhancing youth self-regulation (Hunsley et al., 2022; Purvis et al., 2015; Razuri et al., 2016). Overall, preliminary findings suggest that adding TBRI to standard practice within juvenile facilities may be a promising approach for preventing the initiation and escalation of OU as well as promoting social and emotional well-being among YILS.

High rates of session attendance and completion document the feasibility of recruiting and retaining youth and caregiver participants in online sessions. Barriers to attending TBRI intervention sessions – schedule conflicts, unstable living conditions, and other family priorities – were commonly noted and consistent with prior research among JJ youth and families (Kapoor et al., 2018). Despite these and COVID 19-related barriers, the retention and completion rate of TBRI sessions was comparable or superior to that of similar interventions reported in the literature (Carr, 2019; Kiser et al., 2010). However, engagement in home support components was comparatively low. This is consistent with research on home-based delivery of interventions for youth (Danko et al., 2016; Kapoor et al., 2018) and attributed to challenges among this sample including unstable living conditions among youth (particularly youth over 18 years of age) and competing priorities among caregivers (e.g., health challenges).

Qualitative findings indicate caregiver perceived feasibility and acceptability of TBRI. Caregivers found the intervention content to be informative and applicable, activities to be relevant and engaging, and attributed positive changes in their youth's functioning and relationships to TBRI. Caregivers also spoke to how TBRI helped youth appropriately express needs and enabled caregivers to recognize youth needs. Problem recognition and desire for help are key for substance treatment engagement and recovery, which in turn leads to sustained behavioral changes (Joe et al., 2014). Caregivers' recognition of youth needs may prompt more adoption of TI parenting strategies – a notion consistent with the TBRI mantra 'See the Need, Meet the Need.' A telling signal that a caregiver is viewing their child's behavior through a TI lens is a shift in mindset from viewing misbehavior as "willful disobedience" to viewing it as "survival behavior" (Henry et al., 2007). Notably, caregivers in the current study not only reported that TBRI was helpful, but they described it in the language of TIC, discussing their youth's needs and their role in helping to meet those needs. Finally, caregivers recognizing the importance of involving families in the intervention is critical because caregivers' positive perceptions of an intervention are vital to the success of any attachment-based, relational intervention. This is consistent with a study with Rwandan lay social workers that found "the value of the family" as a key component of TBRI success (Hunsley et al., 2022).

Consistent with caregiver perceptions, staff found the TBRI intervention to be feasible and acceptable, observed positive changes in youth as a result of participation, and noted the value of familial involvement. In a residential setting in which staff are responsible for the day-to-day care of youth, their perception of the program can be critical for implementation success (Gotham et al., 2022). Staff stressed

the importance of "leveraging" families, which corroborates the literature on the importance of family involvement in substance prevention and intervention (Folk et al., 2020; Hogue et al., 2021), and indicated that this component is currently missing in treatment and reentry planning in secure residential facilities (Garfinkel, 2010). Interestingly, caregiver and staff interviews showed divergence in the perspective on trauma histories. One caregiver stated, "…*coming from that place of 'this is a trauma…possibly in utero trauma' and educating the families to know that you didn't do anything wrong*." By contrast, a staff member noted that TBRI was helpful for caregivers "…*taking responsibility for how they've contributed to their child's trauma*." A goal of the TBRI intervention delivery was to balance the presentation of what childhood trauma entails and how it shapes the developing person while minimizing the potential for caregivers to feel shamed or blamed for their possible role in their child's traumatic history. Teaching about trauma with compassion and non-judgment is imperative for facilitators to build felt-safety with caregivers, thus positioning caregivers to build felt-safety with their children. That caregivers spoke positively about learning to view youth's behavior through a TI lens and that staff spoke positively about how TBRI helped caregivers see things from a different perspective indicate that this goal is indeed worth pursuing.

Limitations

Despite its unique contributions, this study has several limitations. First, the small sample size and involvement of staff in selection of participants (intentionally recommending youth with high needs and interest for program participation) limit generalizability. Findings may not represent the youth population at their respective site or a broader YILS population. That said, the current study successfully delivered TBRI to YILS and their caregivers during the COVID-19 pandemic, a period of which engendered several challenges that exacerbated limited service provision among this already underserved population (Warfield et al., 2021). Second, because the intervention occurred within the context of residential care, the degree of change attributed to TBRI versus other treatment program elements cannot be determined. Third, the TBRI intervention was not tested in a randomized clinical trial. Therefore, causality cannot be inferred and factors that could not be controlled in this study may have influenced the intervention outcomes. Fourth, the current study did not include youth perceptions, even though they are a key stakeholder. Furthermore, caregivers from only three families participated in the interviews. The main barriers to participation included scheduling issues for both youth and caregivers and concerns over being voice recorded as part of research procedures (especially among youth). Fifth,

even though perceptions are consistent between English and Spanish speaking caregivers, the feedback on Spanish content and delivery was based on one caregiver. It would be helpful to test the Spanish TBRI intervention with more Spanish-speaking caregivers and to collaboratively identify potential aspects requiring cultural adaptation. Sixth, a potential reporting bias in assessment, especially items about SU, could yield an overly optimistic estimation on the potential of TBRI as a prevention intervention. Finally, the current study occurred during the COVID-19 pandemic wherein a lot of routine service provisions were halted due to health-related restrictions. Although the authors believe that TBRI will continue to be feasible, acceptable, and appropriate for YILS when services fully resume, it is important to note that outcomes may not generalize to youth in facilities post-pandemic.

Implications and Future Directions

While some outcomes observed in this study may be due to participation in residential care, caregivers and staff observed unique gains that are seen in youth regulation and family relationships, some of which may be attributable to TBRI. Future studies are underway that will help determine the added benefit of TBRI, comparing outcomes of youth receiving standard reentry practice (SRP) to those receiving SRP plus TBRI (Knight et al., 2021). While providing TBRI within residential programs may result in added benefits for youth and families, families may need additional support once youths return home. One of the lessons learned from this feasibility study relates to the challenges inherent in providing services to youth and families after discharge from secure residential facilities. Few studies have attempted to address barriers to ongoing reentry support, and it is unclear how much and what type of support families will need in order to be successful in preventing SU and other challenges over time. Lessons learned from this feasibility study will inform the development of strategies to enhance family engagement post-discharge in order to examine the effectiveness of different formats for supporting caregivers in their use of TBRI in their homes. Such studies can help determine whether support is needed after discharge, and if so, how much and in what format.

While various components of the original TBRI Training curricula can be adopted to address trauma directly (such as, the teaching of emotion regulation skills, promotion of safety, and building connect), TBRI is conceptualized as a trauma-informed care model which accounts for the context of care in which trauma in address. TBRI principles and strategies can be used within the broader JJ context as part of daily interactions between youth and staff. The TBRI Caregiver Training curriculum, upon which the LeSA TBRI

curricula are based, is designed not only for in-home care-givers, but also for any individual working with youth in any role and within any setting. The consistent use of TBRI language and strategies and the continuity across inter-personal interactions (i.e., youth with JJ staff, youth with TBRI facilitator, youth with caregiver) serves to strengthen the development of regulatory skills and disarm fear-based behavior, fostering the development of a new repertoire for healthy relationships and functioning as youth prepare to transition home. When these new connection-based strate-gies are continued by caregivers (safe adults) in the home, a continued need for MH and SU intervention can be miti-gated (Pandey et al., 2018).

Conclusion

Increasingly, JJ agencies are encouraged to incorporate TIC into screening, assessment, and treatment services (Baetz et al., 2021; Shulman et al., 2016), yet these youth-centered approaches may be best suited as selective or indicated pre-vention interventions (Substance Abuse and Mental Health Services Administration, 2014b). Nationally, only one-third of JJ and behavioral health agencies reported providing SU prevention services, and JJ agencies were 67% less likely to do so (Funk et al., 2020). TI approaches that strengthen connection, felt-safety, and regulation build resiliency in youth (Bath et al., 2008) and have implications for a host of outcomes including SU and MH. Results of this study dem-onstrate the feasibility of implementing a TI, attachment-based, family systems-oriented prevention intervention within JJ residential facilities. Prevention approaches such as this, that leverage existing youth-caregiver relationships, are essential if gains made during residential stays are to be maintained and future problems prevented after the youth returns home. This study provides preliminary evidence that training caregivers as "safe adults" may help prevent further problems after youth return home, including alcohol, can-nabis, and potential OU. Caregivers are eager and willing to learn how to advocate for their youths' needs and implement new strategies for strengthening relationships and building resiliency, despite histories of trauma and family dysfunc-tion. Indeed, while most research on TBRI focuses on youth in foster and adoptive families, these data suggest that bio-logical families can serve in this role, and material can be successfully delivered in ways that are sensitive to family histories of trauma.

Declarations

References

Baetz, C. L., Surko, M., Moaveni, M., McNair, F., Bart, A., Work-man, S., Tedeschi, F., Havens, J., Guo, F., Quinlan, C., & Hor-witz, S. M. (2021). Impact of a trauma-informed intervention for youth and staff on rates of violence in juvenile detention set-tings. *Journal of Interpersonal Violence*, *36*, 17–18. https://doi.org/10.1177/0886260519857163

Bath, H. (2008). The three pillars of trauma-informed care. *Reclaiming Children and Youth*, *17*(3), 17–21.

Brannan, A. M., Heflinger, C. A., & Bickman, L. (1997). The caregiver strain questionnaire: Measuring the impact on the family of liv-ing with a child with serious emotional disturbance. *Journal of Emotional and Behavioral Disorders*, *5*(4), 212–222. https://doi.org/10.1177/106342669700500404

Carr, A. (2019). Family therapy and systemic interventions for child-focused problems: The current evidence base. *Journal of Family Therapy*, *41*(2), 153–213. https://doi.org/10.1111/1467-6427.12226

Center for Substance Abuse Treatment (2014). Trauma-Informed Care in Behavioral Health Services. Chapter 6, Trauma-Specific Ser-vices. (Treatment Improvement Protocol (TIP) Series, No. 57.). https://www.ncbi.nlm.nih.gov/books/NBK207184

Cohen, J. A., Mannarino, A. P., Kliethermes, M., & Murray, L. A. (2012). Trauma-focused CBT for youth with complex trauma. *Child Abuse & Neglect*, *36*(6), 528–541. https://doi.org/10.1016/j.chiabu.2012.03.007

Cutuli, J. J., Alderfer, M. A., & Marsac, M. L. (2019). Introduction to the special issue: Trauma-informed care for children and fami-lies. *Psychological Services*, *16*(1), 1–6. https://doi.org/10.1037/ser0000330

Danko, C. M., Brown, T., Van Schoick, L., & Budd, K. S. (2016). Predictors and correlates of homework completion and treat-ment outcomes in parent–child interaction therapy. *Child & Youth Care Forum*, *45*(3), 467–485. https://doi.org/10.1007/s10566-015-9339-5

Development Services Group (2019). *Education for Youth Under For-mal Supervision of the Juvenile Justice System*. https://ojjdp.ojp.gov/model-programs-guide/literature-reviews/education_for_youth_under_formal_supervision_of_the_juvenile_justice_sys-tem.pdf

Dierkhising, C. B., Ko, S. J., Woods-Jaeger, B., Briggs, E. C., Lee, R., & Pynoos, R. S. (2013). Trauma histories among justice-involved youth: Findings from the National Child traumatic stress net-work. *European Journal of Psychotraumatology*, *4*. https://doi.org/10.3402/ejpt.v4i0.20274

Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). THE McMaster Family Assessment device. *Journal of Marital and Family Ther-apy*, *9*(2), 171–180. https://doi.org/10.1111/j.1752-0606.1983.tb01497.x

Folk, J. B., Harrison, A., Rodriguez, C., Wallace, A., & Tolou-Shams, M. (2020). Feasibility of social media-based recruitment and per-ceived acceptability of digital health interventions for caregiv-ers of justice-involved youth: Mixed methods study. *Journal of Medical Internet Research*, *22*(4). https://doi.org/10.2196/16370

Folk, J. B., Kemp, K., Yurasek, A., Barr-Walker, J., & Tolou-Shams, M. (2021). Adverse childhood experiences among justice-involved youth: Data-driven recommendations for action using

the sequential intercept model. *American Psychologist*, *76*(2), 268–283. https://doi.org/10.1037/amp0000769

Fraley, R. C., Heffernan, M. E., Vicary, A. M., & Brumbaugh, C. C. (2011). The experiences in Close relationships-Relationship structures Questionnaire: A method for assessing attachment orientations across relationships. *Psychological Assessment*, *23*(3), 615–625. https://doi.org/10.1037/a0022898

Friedman, J., Godvin, M., Shover, C. L., Gone, J. P., Hansen, H., & Schriger, D. L. (2022). Trends in drug overdose deaths among us adolescents, January 2010 to June 2021. *Journal of the American Medical Association*, *327*(14), 1398–1400. https://doi.org/10.1001/jama.2022.2847

Funk, R., Knudsen, H. K., McReynolds, L. S., Bartkowski, J. P., Elkington, K. S., Steele, E. H., Sales, J. M., & Scott, C. K. (2020). Substance use prevention services in juvenile justice and behavioral health: Results from a national survey. *Health & Justice*, *8*(1), 11. https://doi.org/10.1186/s40352-020-00114-6

Garfinkel, L. (2010). Improving family involvement for juvenile offenders with emotional/behavioral disorders and related disabilities. *Behavioral Disorders*, *36*(1), 52–60. https://doi.org/10.1177/019874291003600106

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(11), 1337–1345. https://doi.org/10.1097/00004583-200111000-00015

Gotham, H. J., Cummings, J. R., Dolce, J. N., Druss, B., Gill, K. J., Kopelovich, S. L., Molfenter, T., Olson, J. R., Benson, F., & Chwastiak, L. (2022). Applying implementation science in mental health services: Technical assistance cases from the Mental Health Technology Transfer Center (MHTTC) network. *General Hospital Psychiatry*, *75*, 1–9. https://doi.org/10.1016/j.genhosppsych.2022.01.004

Griffin, G., Germain, E. J., & Wilkerson, R. G. (2012). Using a trauma-informed approach in juvenile justice institutions. *Journal of Child & Adolescent Trauma*, *5*(3), 271–283. https://doi.org/10.1080/19361521.2012.697100

Henry, J., Sloane, M., & Black-Pond, C. (2007). Neurobiology and neurodevelopmental impact of childhood traumatic stress and prenatal alcohol exposure. *Language Speech and Hearing Services in Schools*, *38*(2), 99–108. https://doi.org/10.1044/0161-1461(2007/010)

Hogue, A., Becker, S. J., Wenzel, K., Henderson, C. E., Bobek, M., Levy, S., & Fishman, M. (2021). Family involvement in treatment and recovery for substance use disorders among transition-age youth: Research Bedrocks and opportunities. *Journal of Substance Abuse Treatment*, *129*, 108402. https://doi.org/10.1016/j.jsat.2021.108402

Howard, A. R., Parris, S. R., Nielsen, L. E., Lusk, R., Bush, K., Purvis, K. B., & Cross, D. R. (2014). Trust-based relational Intervention® (TBRI®) for adopted children receiving therapy in an outpatient setting. *Child Welfare*, *93*(5), 47–64.

Hunsley, J. L., Crawley, R. D., Styffe, E. J., West, A., Call, C. D., & Hategekimana, C. (2022). Effectiveness of a trauma-informed intervention in a deinstitutionalization programme in rural Rwanda. *Child & Family Social Work*, *27*(2), 287–298. https://doi.org/10.1111/cfs.12884

Institute of Behavioral Research. (2010). *TCU adolescent thinking form B (TCU ADOL THKForm B)*. Texas Christian University.

Institute of Behavioral Research. (2020). *TCU Drug Screen 5*. Texas Christian University.

Jang, E. E., McDougall, D. E., Pollon, D., Herbert, M., & Russell, P. (2008). Integrative mixed methods data analytic strategies in research on school success in challenging circumstances. *Journal of Mixed Methods Research*, *2*(3), 221–247. https://doi.org/10.1177/1558689808315323

Joe, G. W., Knight, K., Becan, D., J. E., & Flynn, P. M. (2014). Recovery among adolescents: Models for post-treatment gains in drug abuse treatments. *Journal of Substance Abuse Treatment*, *46*(3), 362–373. https://doi.org/10.1016/j.jsat.2013.10.007

Kapoor, A., Peterson-Badali, M., & Skilling, T. (2018). Barriers to service provision for justice-involved youth. *Criminal Justice and Behavior*, *45*(12), 1832–1851. https://doi.org/10.1177/0093854818794754

Kiser, L. J., Donohue, A., Hodgkinson, S., Medoff, D., & Black, M. M. (2010). Strengthening family coping resources: The feasibility of a multifamily group intervention for families exposed to trauma. *Journal of Traumatic Stress*, *23*(6), 802–806. https://doi.org/10.1002/jts.20587

Knight, D. K., Yang, Y., Joseph, E. D., Tinius, E., Young, S., Shelley, L. T., Cross, D. R., & Knight, K. (2021). Preventing opioid use among justice-involved youth as they transition to adulthood: Leveraging safe adults (LeSA) protocol paper. *Bmc Public Health*. https://doi.org/10.1186/s12889-021-12127-3

Moore, S. C., & Cusens, B. (2010). Delay discounting predicts increase in blood alcohol level in social drinkers. *Psychiatry Research*, *179*(3), 324–327. https://doi.org/10.1016/j.psychres.2008.07.024

Moreland, A., & Ressler, K. J. (2021). A perspective for understanding trauma and the criminal juvenile justice system: Using a trauma-informed lens for meaningful and sustained change. *Harvard Review of Psychiatry*, *29*(3), 216–224. https://doi.org/10.1097/HRP.0000000000000290

Murphy, A., Steele, M., Dube, S. R., Bate, J., Bonuck, K., Meissner, P., Goldman, H., & Steele, H. (2014). Adverse childhood experiences (ACEs) questionnaire and adult attachment interview (AAI): Implications for parent child relationships. *Child Abuse & Neglect*, *38*(2), 224–233. https://doi.org/10.1016/j.chiabu.2013.09.004

Nock, M. K., & Photos, V. I. (2006). Parent motivation to participate in treatment: Assessment and prediction of subsequent participation. *Journal of Child and Family Studies*, *15*, 333–346. https://doi.org/10.1007/s10826-006-9022-4

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*(1). https://doi.org/10.1177/1609406917733847

Olaghere, A., Wilson, D. B., & Kimbrell, C. S. (2021). Trauma-informed interventions for at-risk and justice-involved youth: A meta-analysis. *Criminal Justice and Behavior*, *48*(9), 1261–1277. https://doi.org/10.1177/00938548211003117

Pandey, A., Hale, D., Das, S., Goddings, A. L., Blakemore, S. J., & Viner, R. M. (2018). Effectiveness of universal self-regulation–based interventions in children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, *172*(6), 566–575. https://doi.org/10.1001/jamapediatrics.2018.0232

Perry, B. D. (2003). Effects of traumatic events on children. In *The Child Trauma Academy* (pp. 1–21). http://www.fa-sett.no/filer/perry-handout-effects-of-trauma.pdf

Purvis, K. B., Cross, D., Jones, D., & Buff, G. (2012). Transforming cultures of care: A case study in organizational change. *Reclaiming Children and Youth*, *21*(2), 12–20.

Purvis, K. B., Cross, D. R., Dansereau, D. F., & Parris, S. R. (2013a). Trust-based relational intervention (TBRI): A systemic approach to complex developmental trauma. *Child & Youth Services*, *34*(4), 360–386. https://doi.org/10.1080/0145935X.2013.859906

Purvis, K. B., McKenzie, L. B., Cross, D. R., & Razuri, E. B. (2013b). A spontaneous emergence of attachment behavior in at-risk children and a correlation with sensory deficits. *Journal of Child and Adolescent Psychiatric Nursing*, *26*(3), 165–172. https://doi.org/10.1111/jcap.12041

Purvis, K. B., McKenzie, L. B., Razuri, B., Cross, E., D. R., & Buckwalter, K. (2014). A Trust-based intervention for complex

developmental trauma: A case study from a residential treatment center. *Child and Adolescent Social Work Journal*, *31*(4), 355–368. https://doi.org/10.1007/s10560-014-0328-6

Purvis, K. B., Razuri, E. B., Howard, A. R. H., Call, C. D., DeLuna, J. H., Hall, J. S., & Cross, D. R. (2015). Decrease in behavioral problems and trauma symptoms among at-risk adopted children following trauma-informed parent training intervention. *Journal of Child & Adolescent Trauma*, *8*(3), 201–210. https://doi.org/10.1007/s40653-015-0055-y

Razuri, E. B., Howard, A. R. H., Parris, S. R., Call, C. D., DeLuna, J. H., Hall, J. S., Purvis, K. B., & Cross, D. R. (2016). Decrease in behavioral problems and trauma symptoms among at-risk adopted children following web-based trauma-informed parent training intervention. *Journal of Evidence-Informed Social Work*, *13*(2), 165–178. https://doi.org/10.1080/23761407.2015.1014123

Razuri, E. B., Yang, Y., Tinius, E., & Knight, D. K. (2024). Adaptation of a trauma-informed intervention for youth involved in the legal system. *Journal of Substance Use and Addiction Treatment*. https://doi.org/10.1016/j.josat.2024.209294

Ridenour, T. A. (2020). *HEAL Prevention Cooperative Common Constructs [white paper]*.

Schalet, B. D., Pilkonis, P. A., Yu, L., Dodds, N., Johnston, K. L., Yount, S., Riley, W., & Cella, D. (2016). Clinical validity of PROMIS Depression, anxiety, and anger across diverse clinical samples. *Journal of Clinical Epidemiology*, *73*, 119–127. https://doi.org/10.1016/j.jclinepi.2015.08.036

Shulman, E. P., Bechtold, J., Kelly, E. L., & Cauffman, E. (2016). Mental health screening in juvenile justice settings: Evaluating the utility of the Massachusetts Youth Screening Instrument, Version 2. *Criminal Justice Policy Review*, *29*(8), 849–872. https://doi.org/10.1177/0887403416650250

Simpson, D. D., & McBride, A. A. (1992). Family, friends, and Self (FFS) Assessment scales for Mexican American youth. *Hispanic Journal of Behavioral Sciences*, *14*(3), 327–340. https://doi.org/10.1177/07399863920143003

Stein, M. D., Conti, M. T., Kenney, S., Anderson, B. J., Flori, J. N., Risi, M. M., & Bailey, G. L. (2017). Adverse childhood experience effects on opioid use initiation, injection drug use, and overdose among persons with opioid use disorder. *Drug and Alcohol Dependence*, *179*, 325–329. https://doi.org/10.1016/j.drugalcdep.2017.07.007

Substance Abuse and Mental Health Services Administration (2020). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/

Substance Abuse and Mental Health Services Administration (2014b). *Prevention of Substance Use and Mental Disorders*. https://www.samhsa.gov/find-help/prevention

Substance Abuse and Mental Health Services Administration (2021). *Key substance use and mental health indicators in the United States: Results from the 2020 National Survey on Drug Use and Health (HHS Publication No. PEP21-07-01-003, NSDUH Series H-56)*

Substance Abuse and Mental Health Services Administration (2014a). *SAMHSA's Concept of Trauma and Guidance for a trauma-informed Approach*. HHS Publication No (SMA) 14–4884.

Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., Shook, J. J., & Terzis, L. (2015). A typology of drug selling among young adults in the United States. *Substance Use & Misuse*, *50*(3), 403–413. https://doi.org/10.3109/10826084.2014.984850

Warfield, S. C., Pack, R. P., Degenhardt, L., Larney, S., Bharat, C., Ashrafioun, L., Marshall, B. D. L., & Bossarte, R. M. (2021). The next wave? Mental health comorbidities and patients with substance use disorders in under-resourced and rural areas. *Journal of Substance Abuse Treatment*, *121*, 108189. https://doi.org/10.1016/j.jsat.2020.108189

Zettler, H. R. (2020). Much to do about trauma: A systematic review of existing trauma-informed treatments on youth violence and recidivism. *Youth Violence and Juvenile Justice*, *19*(1), 113–134. https://doi.org/10.1177/1541204020939645