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Research Article

Impact of Evidence-Based Psychosocial Treatment on Service Utilization Among Adolescents with Co-Occurring Posttraumatic Stress Disorder Symptoms and Substance Use Problems

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Abstract

Objective: To examine the impact of evidence-based, trauma-focused treatment on mental health service utilization and juvenile justice involvement among adolescents with co-occurring posttraumctic stress disorder (PTSD) symptoms and substance use problems.

Method: This study is a secondary analysis of a randomized controlled trial examining the efficacy of Risk Reduction Through Family Therapy (RRFT), an integrated treatment for youth with co-occurring PTSD and substance use problems. Participants were 127 adolescents (aged 13-18 years) with at least one memorable experience of interpersonal trauma, at least one day of nontobacco substance use in the previous 90 days, and five or more PTSD symptoms. Adolescents (87% female; mean [SD] age 15.4 [1.3]; 63% white) were randomized to RRFT (n = 61) or treatment as usual (TAU; primarily Trauma Focused Cognitive Behavioral Therapy [TF-CBT]; n = 63) groups. Data on health service utilization was collected at baseline (pre-treatment) and at 18 months post-treatment using the Services Assessment for Child and Adolescent (SACA).

Results: Youth in both treatment conditions had fewer inpatient mental health hospitalizations and lower rates of juvenile justice involvement at 18-month follow up. Participants who received RRFT showed a relatively greater reduction in hospitalizations post-treatment compared with those who received TAU.

Conclusions: Evidence-based trauma-focused treatment, irrespective of the incorporation of specific substance use modalities, can be effective in reducing utilization of costly and intensive health services among youth with PTSD. These findings suggest that evidence-based trauma-focused psychosocial treatment has the potential to offset the public health costs associated with the comprehensive treatment needs of this population.

INTRODUCTION

Childhood trauma exposure is widely prevalent, with more than 65% of youth experiencing at least one traumatic event before they reach adulthood [1,2].Traumatic events are defined by the DSM-V as actual or threatened death, serious injury, or sexual violence and may include experiences such as interpersonal victimization (e.g., physical, sexual, and/or emotional abuse, racism-related trauma), sudden or violent loss of a loved one, serious accidents or injuries, and natural disasters. Youth who have been exposed to trauma are at elevated risk for mental health disorders, including posttraumatic stress disorder (PTSD) and substance use disorders [3-5].These youth are also higher utilizers of resource-intensive elements of comprehensive treatment for youth with co-occurring psychiatric problems, such as inpatient mental health treatment and state systems of care (e.g., juvenile justice, foster care) [6,7].

Existing evidence-based psychosocial treatments, including Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), have been established as effective and widely-used treatments designed to reduce traumatic stress in youth with PTSD and have been shown to reduce utilization of high-end mental health services (i.e., inpatient hospitalization, intensive outpatient programs) [8]. However, few treatments for adolescent PTSD incorporate treatment for substance use problems, which occur at a high rate among youth with PTSD. Adolescents with co-occurring PTSD and substance use problems also use health services at

higher rates than those with PTSD or substance use problems in isolation, thus, supporting the need for integrated treatment—and for further research into studying the impact of integrated treatment into utilization of resource-intensive services for this population. Furthermore, recent recommendations indicate that substance use risk reduction should be implemented as a secondary prevention strategy among at-risk youth (e.g., youth with PTSD), even if not yet experiencing substance use problems [9]. One recent treatment integrated approach, Risk Reduction Through Family Therapy (RRFT), has incorporated substance use components to allow for concomitant treatment of PTSD and substance use problems, and has found robust effects in reducing both PTSD and substance use related symptoms [10].

Despite increasing rates of adolescent substance use problems (e.g., opioid overdose) [11], and mental health problems and robust empirical evidence for trauma-focused treatment, widespread adoption of evidence-based treatment models is lacking due to the costs associated with implementing and maintaining an evidence-based treatment model [12,13]. Considering the economic burden of childhood traumatic stress, which has been estimated at $428 billion per year, the implementation of integrated evidence-based treatments for PTSD and substance use problems has the potential to offset public health costs by reducing future need for resource intensive mental health services [14].

This study examined the impact of evidence-based, trauma-focused treatment for adolescents with co-occurring PTSD symptoms and substance use problems on costly services often required for this population. Specifically, we examined the effect of trauma-focused treatment on in-patient hospitalizations for mental health or substance use problems and juvenile detention outcomes. We also examined these outcomes independently among adolescents receiving evidence-based treatment targeting both PTSD and substance use (i.e., RRFT) and those receiving trauma-focused treatment for PTSD only (i.e., TF-CBT).

METHOD

Participants

The current study is secondary analysis of a randomized controlled trial examining the efficacy of Risk Reduction Through Family Therapy (RRFT), an integrated treatment for youth with co-occurring PTSD symptoms and substance use problems [10]. Participants were 127 youth recruited from childhood advocacy centers in the southeast United States that provide mental health services to youth who have experienced child maltreatment. Inclusion criteria were: adolescents aged 13-18 years who reported at least one memorable experience of interpersonal trauma, at least one day of nontobacco substance use in the previous 90 days, and five or more PTSD symptoms. Youth with pervasive developmental disability, intellectual disability, active suicidal or homicidal ideation, or active psychosis, or those already engaged in treatment were excluded. A total of 127 adolescents were enrolled in the RCT and randomized to RRFT (n = 61) or treatment as usual (TAU; TF-CBT; n = 63) groups. Approximately 87% of youth in the sample were female. The mean age was 15.4 (SD = 1.3). Ethnic/racial breakdown was as follows: white (63%), black (29%) Latino/a/x (5.6%), and biracial (2%). Five percent of the sample was Hispanic. Participants reported experiencing a mean of 3.6 (SD = 2.0) different traumatic event types. Treatment fidelity was closely monitored through gold-standard measures. Detailed description of the study protocol is published elsewhere [15].

Measures

Demographics: Participants were asked to provide information about age, sex, ethnicity, Hollingshead socioeconomic data [16], and family composition.

Service Utilization:The Services Assessment for Child and Adolescent (SACA), a widely used measure of youth service utilization, assessed participants' use of mental health services, including outpatient services, inpatient/residential services, and school services. Service utilization was assessed at baseline (lifetime use, use in the past six months) and at an 18 month post-baseline follow-up assessment (use in the past six months). The SACA has demonstrated strong validity and reliability among adolescents and caregivers.[17]

RESULTS

All data analyses were conducted using STATA 17 (StataCorp, 2021). Adolescents in both treatment conditions demonstrated a significant decrease in substance use and/or mental health hospitalizations from baseline to 18-month follow-up ($t(194) = 2.63$, $p = .009$). Overall, youth who received either type of evidence-based trauma-informed treatment offered in the study had fewer inpatient hospitalizations and lower rates of juvenile justice involvement. In general, youth who received RRFT demonstrated slightly lower use of mental health services compared to youth who received TAU. See Table 1 for service utilization at baseline and 18-month follow-up among the full sample, RRFT group, and control group.

DISCUSSION

This study examined the impact of evidence-based trauma treatment on service utilization in adolescents with co-ocurring PTSD symptoms and substance use problems. Youth in both treatment groups benefitted in terms of reduction of costly resource use across these areas from pre- to post- treatment (through 18 months post-baseline follow up). Adolescents who received RRFT showed a relatively greater reduction in hospitalizations post-treatment compared with those who received TAU. In regard to juvenile justice involvement, youth receiving either evidence-based trauma treatment showed slight reductions in utilization, although there was no significant difference between treatment groups.

These findings demonstrate that engagement in trauma-focused treatment, regardless of the incorporation of specific

Table 1: Service Utilization at Baseline and 18-months Following Evidence-Based Treatment for Co-Occurring PTSD and Substance Use

	Baseline			18-months		
	Full Sample *N* = 127	**RRFT *n* = 65**	**TAU *n* = 62**	**Full Sample *N* = 69**	**RRFT *n* = 34**	**TAU *n* = 35**
Any Hospitalizations (Mental Health or Substance Use)	30.7%	30.8%	30.7%			
Any Hospitalization past six months	17.3%	18.5%	16.1%	4.3%	0.0%*	8.6%
Mental Health Hospitalizations lifetime	26.8%	26.2%	27.4%			
Mental Health Hospitalizations past six months	13.4%	12.3%	14.5%	4.7%	0.0%*	9.4%
Substance Use Hospitalizations Lifetime	7.9%	9.2%	6.5%			
Substance Use Hospitalizations past six months	5.5%	7.7%	3.2%	1.4%	0.0%	2.9%
Stays in detention center or R&E lifetime	11.0%	12.3%	9.7%			
Stays in detention center or R&E past six months	7.1%	9.2%	4.8%	5.8%	2.9%	8.6%
Juvenile prison/correctional facility lifetime	7.1%	7.7%	6.5%			
Juvenile prison/correctional facility past six months	5.5%	6.2%	4.8%	4.4%	5.9%	2.9%

Note. RRFT: Risk-Reduction Through Family Therapy. R&E: Reception & Evaluation. Number of observations differ due to missing data. * $p < .01$ between RRFT and TAU.

substance use modalities, can be effective in reducing hospitalizations among teens. However, for adolescents with co-occurring PTSD and substance use problems, integrated treatment targeting both symptom groups may result in the strongest reduction in hospitalizations following intervention. The reduction in rates of hospitalization could be due to a number of factors. Naturally, the reduction of substance use and PTSD symptoms would decrease overall mental health symptom severity, leading to lower rates of hospitalization. Symptom reduction may also increase adolescents' engagement in greater prosocial and healthy activities (which are targeted elements of RRFT treatment), thus further reducing the likelihood of requiring hospitalization post-treatment.

Overall, the results of this study indicate a potential for great public health cost savings in the application of evidence-based trauma-focused treatment for youth with co-occurring PTSD and substance use problems. The rate of mental health hospitalizations in youth increased by 25% between 2009 and 2019 and cost $1.37 billion [18]. This increase has been further exacerbated by the pandemic and National State of Emergency for Child and Aoldescent Mental Health [19]. For youth with co-occurring PTSD and substance use problems, who often utilize more intensive (and expensive) health services at higher rates than those with PTSD only, these costs may be offset by the implementation of integrated treatment strategies.[12] Thus, the additional costs associated with integrated treatments (e.g., RRFT incorporates clinician-to-adolescent and -to-caregiver text messaging in between sessions to increase likelihood of daily uptake of skills and strategies taught in session) are likely to ultimately serve as worthy investments to prevent the more expensive costs that extend from resource-intensive servives (e.g., psychiatric in-patient hospitalizations). A current, large scale clinical trial is under-way to examine the cost-effectiveness of RRFT.

Despite these findings, several limitations should be noted. First, due to the interval between baseline and final follow-up assessment (i.e., 18 months), a portion of participants were lost to follow-up. Of participants who completed the SACA at baseline, 54.3% completed the SACA at 18-months post-baseline follow up. Another limitation is that the majority of the sample was female (87.1%). Adolescent males who develop PTSD following trauma exposure may be at higher risk for development of substance use problems than adolescent females, thus, replication with a larger representation of male participants is needed. Future research should continue to investigate the effects of evidence-based trauma treatment, as well as integrated treatment for PTSD and substance use problems, on utilization of mental health services and associated public health costs. Such research is critical to identify the most efficacious and cost-effective approaches to improving long-term behavioral health trajectories for young people who have experienced trauma, which will ultimately have a positive impact on public health at the population level as well.

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