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Statewide Trends of Trauma History, Suicidality, and Mental Health Among Youth Entering the Juvenile Justice System

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A B S T R A C T

Purpose: This study used Washington statewide administrative data to document the prevalence and trend of trauma history, suicidality, and mental health problems among all youth ordered to probation for the first time between 2011 and 2015. We also examined the extent to which trauma and mental health problems were associated with youth suicide risk during this time.

Methods: More than 16,500 youth started probation (2011–2015) and received a standardized risk assessment. We used descriptive statistics to assess the prevalence of trauma history, suicidality, mental health problems, and overall risk to reoffend. We then used multilevel logistic regression models (youth within counties) to assess each measure's association with suicidality.

Results: About 80% of the youth had a history of at least one traumatic experience. As fewer youth started probation for the first time each year, the prevalence of trauma, suicidality, mental health problems, and overall risk to reoffend increased. Trauma, mental health, and overall risk were significantly associated with suicide risk among probation youth.

Conclusions: This epidemiological study is expected to motivate discussion around the best ways to integrate trauma-informed care and suicide prevention in the juvenile justice system.

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IMPLICATIONS AND CONTRIBUTION

Trauma and suicidality are significantly more prevalent among youth in the juvenile justice system than among other adolescents. This population-based study provides an epidemiological understanding of first-time probationers across multiple years. By assessing and intervening with youth entering probation, long-term adverse outcomes can be prevented or mitigated, with positive public health impact.

Conflicts of interest: The authors have no potential, perceived, or real personal, commercial, political, academic, or financial conflict of interest.

Registration of Clinical Trial: Not applicable.

This research used state administrative data and descriptive statistics to assess the prevalence of trauma history, suicidality, mental health problems, and overall risk to reoffend. No human subjects were involved in this study.

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In the United States, 12%–17% of all adolescents report ever seriously considering suicide, and 4%–8% report attempting suicide [1,2]. Rates of suicidality are two to three times higher among juvenile justice-involved adolescents: 19%–32% report suicidal ideation [1], and 12%–16% [2] report suicide attempts [3]. Moreover, approximately 70% of youth in the juvenile justice system have experienced a traumatic event, and 30% have a history of frequent and injurious physical and sexual abuse experience [4]. Experiencing trauma has been linked to a multitude of negative mental, emotional, behavioral, and physical health outcomes [5]. Particularly relevant to the juvenile

justice population, many studies have shown links among trauma and aggression, violence, and substance use [6,7]. Furthermore, youth with trauma likely have associated mental or emotional health problems that amplify their risk for suicide [8]. This problem poses a substantial economic burden to states, counties, and taxpayers. According to the National Child Trauma Stress Network's website, in 2007, childhood trauma had a direct cost (e.g., hospitalization, mental health care, child welfare systems, law enforcement) of \$70.7 billion and an indirect cost (e.g., special education, juvenile delinquency, juvenile justice system, loss of work) of \$33.1 billion. More recent data suggest that the economic burden of child maltreatment in 2015 was \$42 billion [9].

Extensive research exists on adverse childhood experiences (ACEs), inclusive of various traumatic events in life. ACEs have found to be associated with depression and posttraumatic stress disorder [10,11], and experiencing four or more ACEs make an individual 4.5 times more likely to experience depression and up to 15 times more likely to attempt suicide [12]. Juvenile offenders are four times more likely to report experiencing four or more ACEs than those in the 1998 ACE study. Studies have, thus, called for service delivery systems to adopt a trauma-informed care (TIC) approach [13] that uses screening and assessment tools focused on adverse experiences and interventions [12]. The TIC approach increases trauma awareness and helps change policy, practice, and organizational culture to limit retraumatization [12]. Specific to the juvenile justice system, TIC is critical to promoting rehabilitation and healing among youth with high levels of trauma [14].

Although experts highlight the need for TIC in the juvenile justice system and many studies have examined the prevalence of trauma and adversities among justice-involved youth [15–17], population-based studies are necessary for understanding the epidemiology of the problem and to inform statewide policy and practice. It is also important to examine trends across time, as the juvenile justice population has shrunk considerably over the past several decades. Nationally, there was an estimated 49% decrease in juvenile delinquency cases filed from 2005 to 2016 [18]. Similarly, in Washington State, the number of juvenile offender referrals decreased by 55% from 2007 to 2015 [19]. It is unknown whether these changes have resulted in a different profile of justice-involved youth with regard to risk level and trauma histories [19,20] and ultimately how the changes might relate to rates of mental health problems including suicide [21].

While trauma and mental health among youth in the juvenile justice system have received some empirical attention, suicide has not been well studied, with one exception [3]. Thus, it is important to examine suicide risk alongside trauma, mental health, and overall risk of reoffending. Moreover, literature on suicide risk among juvenile justice youth primarily focuses on incarcerated youth. An overwhelming majority of youth involved in the juvenile justice system, however, are in the community serving probation [22]. This study examines risk-assessment data for all first-time probationers in Washington across multiple years to identify epidemiological trends. As suicide risk increases as youth become more deeply involved in the juvenile justice system, assessing and intervening with youth entering probation for the first time can prevent or mitigate long-term adverse outcomes.

This study addresses three research questions. First, what is the prevalence of trauma history, suicidality, mental health problems, and overall risk to reoffend among youth starting

probation for the first time in Washington State between 2011 and 2015? Second, does the prevalence of these factors change over time as fewer youth enter the juvenile justice system? Third, are trauma history, mental health problems, and risk level related to suicide risk? We hypothesize that there will be an increase in the prevalence of trauma history, mental health problems, and overall risk to reoffend over time, as we suspect that the reduced number of youths entering the juvenile justice system is due to lower risk youth being diverted out of the system. We also expect that all three factors will be significantly related to suicide risk.

Methods

Data description

Data were drawn from the Washington State Court Contact and Recidivism Database and the Assessments Research Database. The former contains information about all juvenile court contacts in the state and was used to identify the study sample. The latter contains risk assessment data for all youth who have been administered the Positive Achievement Change Tool (PACT), which has been found to be empirically valid and reliable across gender and racial/ethnic groups with regard to predicting a youth's risk to reoffend [23–25]. Studies in Washington and Florida report AUC values ranging from .59 to .64 for the entire sample [23,24,26]. Researchers report an intraclass correlation coefficient of .83 when examining the overall risk to reoffend [27].

Every juvenile probation counselor (JPC) must become certified in implementing the PACT by the state's quality assurance coordinator before commencing solo practice. While the primary goal of the PACT is to assess a youth's risk to reoffend, important social history information is also collected which researchers have used to assess the prevalence of trauma (specifically ACEs), substance use, and mental health in juvenile justice-involved youth [16,28,29]. JPCs implement the risk-assessment tool during a one-on-one semi-structured interview, using motivational interviewing strategies to elicit responses and triangulating information with court records (e.g., juvenile dependency case filing records) and/or interviews with collateral contacts (e.g., parents and teachers). For example, JPCs are instructed to determine physical abuse by asking the minor and contacting a qualified professional and are given clear guidelines on what types of events to consider [30]. A software program is used to collect data and score the PACT. JPCs choose the correct response from a provided list based on the information garnered from the youth interview, either simultaneously or shortly after the interview is completed.

Our sample includes all youth in Washington who started probation for the first time between 2011 and 2015 and were assessed with the PACT prescreen or initial assessment either before adjudication or soon after their adjudication date ($N = 16,568$). With very few exceptions (e.g., as a result of an administrative error), all youth who are ordered to probation are administered the PACT. Across all years, the sample was 26.6% female, 63.2% European American/white, 16.4% Latinx/Hispanic, 12.7% African American/black, 3.9% Native American/Alaskan Native, 3.2% Asian American/Asian, and .7% of other racial/ethnic heritage. The University of Southern California Institutional Review Board and Washington Association of Juvenile Court Administrators approved all research procedures.

Measures

Demographics. Race/ethnicity and gender data came from the Court Contact and Recidivism Database. All remaining measures were obtained from PACT data.

Trauma history. To better understand the nature of trauma experienced by probation youth, we organized measures of trauma history into four groups: (1) child maltreatment; (2) vicarious violence; (3) separation from family; and (4) other forms of trauma (Table 1). Each trauma type is represented by a dichotomous indicator of the presence (1) or absence (0) of at least one event in that category. Child maltreatment includes history of physical and/or sexual abuse and neglect. Vicarious violence includes witnessing violence in the home or community, experiencing the death of a family member due to violence, and knowing someone well who has committed suicide. Separation from a family member includes separation via a child welfare–related out-of-home placement and incarceration of a family member. Other trauma comes from a separate PACT item that “provides the youth the opportunity to think of any other events that the youth experienced as ‘bad or terrifying’ or that resulted in ‘bad thoughts or dreams’ [30].” This allowed us to assess the overall prevalence of any trauma, as well as the specific types covered in the PACT.

Overall risk status. The level of risk to reoffend (high, moderate, and low) is determined by items in two PACT domains: criminal history and social history. Examples of criminal history items include the youth's age at his or her first offense and the number and types of prior juvenile court referrals (including the referral that resulted in the current probation order and any prior referrals, even those that resulted in a diversion agreement or a deferred disposition). The social history score covers several domains, including: school (e.g., enrollment status and school conduct); peers (e.g., association with antisocial peers); family

(e.g., parent authority); and individual (e.g., youth's substance use).

Mental health problems. We created a dichotomous measure of mental health problems by combining two PACT items. A youth was coded (1) for having a history of mental health problems if he or she reported one of the following: at least occasional feelings of depression/anxiety (based on self-report); or a history of mental health problems (excluding conduct disorder, oppositional defiant disorder, substance abuse, and attention deficit disorder/attention deficit hyperactivity disorder), as evidenced by the youth ever having been diagnosed, prescribed medication, and/or having received mental health counseling/treatment. JPCs are trained to validate that the mental health problem history has been confirmed by a mental health professional, and this PACT item has been used in other published studies [29,31].

Suicide risk. A youth was coded (1) for suicide risk if he or she reported one of the following: ideation (had serious thoughts about suicide); plans (made a plan to commit suicide); attempts (attempted to commit suicide); and hopelessness in life (felt life is not worth living—no hope for the future).

Analysis

We used descriptive analyses to examine the prevalence of trauma history, mental health problems, overall level of risk to reoffend, and suicide risk from 2011 to 2015. Random intercept models, adjusting for demographic characteristics, estimated the growth in the proportion of youth reporting each measure (trauma history, mental health problems, overall level of risk, and suicide) over time (level 1) accounting for mean difference across counties (level 2). To assess the relationship between each of the independent variables (trauma history, mental health problems, and overall risk to reoffend) and suicide risk for each year, multilevel modeling with a logit-link function was conducted

Table 1
Descriptive of first-time probation youth in Washington State 2011–2015

Study variables	2011		2012		2013		2014		2015	
	N	%	N	%	N	%	N	%	N	%
Total	4,032		3,752		3,168		2,912		2,704	
Sex										
Male	2,972	73.7	2,764	73.7	2,295	72.4	2,088	71.7	2,010	74.3
Female	1,060	26.3	988	26.3	873	27.6	824	28.3	694	25.7
Race										
African American/black	436	10.8	484	12.9	424	13.4	416	14.3	383	14.2
Asian American/Asian	121	3.0	141	3.8	82	2.6	103	3.5	81	3.0
European American/white	2,623	65.1	2,362	63.0	1,988	62.8	1,781	61.2	1,667	61.7
Latinx/Hispanic	676	16.8	618	16.5	504	15.9	477	16.4	441	16.3
Native American/Alaskan Native	145	3.6	121	3.2	144	4.6	121	4.2	116	4.3
Other	31	0.8	26	0.7	26	0.8	14	0.5	16	0.6
Trauma (yes/no)	3,103	77.0	2,936	78.3	2,566	81.0	2,421	83.1	2,204	81.5
Child maltreatment	1,369	34.0	1,321	35.2	1,168	36.9	1,079	37.1	984	36.4
Vicarious violence	2,333	57.9	2,274	60.6	2,036	64.3	1,919	65.9	1,712	63.3
Separation from family	2,218	55.0	2,074	55.3	1,775	56.0	1,715	58.9	1,603	59.3
Other trauma	1,113	27.7	1,039	27.8	948	30.0	898	30.9	880	32.7
Risk level										
Low	1,684	41.8	1,514	40.4	1,204	38.0	1,077	37.0	1,002	37.1
Moderate	1,253	31.1	1,158	30.9	971	30.7	922	31.7	792	29.3
High	1,095	27.2	1,080	28.8	993	31.3	913	31.4	910	33.7
Mental health problems	2,282	56.8	2,332	62.3	1,999	63.2	1,884	64.8	1,704	63.3
Suicidal risk (i.e., ideation, attempts, self-harm)	844	21.03	860	23.0	796	25.2	783	27.0	785	29.1

using maximum likelihood estimate, controlling for demographic characteristics. Multilevel models were assessed separately for each year as well as collapsed across all years. All analytic procedures were conducted in Stata 10 (StataCorp, College Station, TX) [32].

Results

The number of youths starting probation for the first time decreased by 32%, from 4,032 youth in 2011 to 2,704 youth in 2015 (Table 1). Gender composition remained relatively unchanged; each year, over 70% of the first-time probationers were male. Consistent with national trends [19], African-American/black youth and Native American/Alaskan Native youth were disproportionately represented among first-time probationers in Washington State. While African-American/black youth make up approximately 4% of youth in Washington State, they comprised 10.8% of first-time probationers in 2011 and 14.2% in 2015. Native American/Alaskan Native youth made up 2% and 1% of youth in Washington State in 2011 and 2015, respectively, but they comprised 3.6% of first-time probationers in 2011 and 4.3% in 2015. Furthermore, between 2011 and 2015, while the percentage of European American/white youth among first-time probationers decreased by 6%, African-American/black youth increased by 32% and Native American/Alaskan Native youth increased by 19%.

As hypothesized, percentages of youth reporting trauma increased across all types between 2011 and 2015 (Figure 1). In 2011, 77.0% of youth entering probation for the first time reported at least one type of trauma compared with 81.5% in 2015 (slope $B = 1.10$; $p < .001$). Between 2011 and 2015, the prevalence of vicarious violence increased from 57.9% to 63.3%; child maltreatment increased from 34.0% to 36.0%; separation from family increased from 55.0% to 59.3%; and other types of trauma increased from 27.7% to 32.7%. The prevalence of mental health problems was high across all years and steadily increased over time from 56.8% in 2011 to 63.3% in 2015 (slope $B = .02$; $p < .001$). There was a 24% increase in the number of youths characterized

as high risk from 2011 to 2015 (slope $B = .07$; $p < .001$). Suicide risk increased from 21.0% in 2011 to 29.1% in 2015 (slope $B = .09$; $p < .001$).

Across each year, the patterns of associations remained comparable where trauma history, histories of mental health problems, and higher overall risk were associated with significant increase in the odds of suicidal risk (Table 2). When we collapse the data across all years after controlling for race/ethnicity, gender, risk level, and histories of mental health problems, we find that having trauma increased the odds of suicidal risk by 56% (odds ratio 1.56; $p < .001$). This estimated an overall relationship between trauma and suicide consistently shown in each year. Approximately 3% of the variation in suicidal risk was explained by county-level differences.

Discussion

This study assessed the statewide trends of trauma, mental health problems, overall risk to reoffend, and suicide risk among youth starting probation for the first time in Washington between 2011 and 2015. Over that time, the number of youths in the juvenile justice system significantly decreased [33] and the number of youths entering probation also decreased. These decreases correspond to a similar national decrease in juvenile court involvement [34], potentially indicating that preventive interventions in schools and communities are working to deter youth from the juvenile justice system. Through the American Academy of Social Work & Social Welfare's grand challenge to ensure healthy development for all youth, health practitioners, policymakers, and researchers are better equipped to address delinquent behavior through a preventive lens [35]. In the last three decades, 65 programs across various systems of care have reduced behavioral health challenges and the social inequities faced by those who disproportionately experience such problems. As hypothesized, the proportion of first-time probationers categorized as high risk increased between 2011 and 2015. Possibly, youth with lower risk profiles are successfully being diverted for informal processing, consistent with what empirical

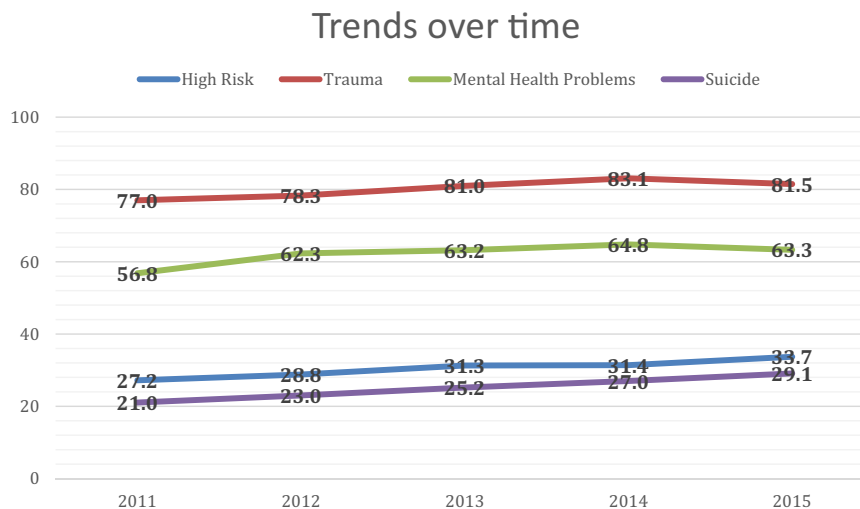


Figure 1. Statewide trends of high-risk, trauma, mental health problems, and suicide for 2011–2015.

Table 2
Multilevel analyses predicting suicide risk during 2011–2015

Suicide risk	2011		2012		2013		2014		2015		2011–2015	
	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)	B	OR (95% CI)
Constant	−4.43	.01*** (.01, .02)	−4.06	.02*** (.01, .03)	−4.13	.02*** (.01, .03)	−3.83	.02*** (.01, .04)	−3.59	.03*** (.02, .05)	−3.99	.01*** (.01, .02)
Sex (vs. Female)												
Male	−.37	.69*** (.56, .85)	−.50	.61*** (.50, .74)	−.52	.60*** (.48, .74)	−.51	.60*** (.49, .74)	−.42	.66*** (.53, .82)	−.47	.63*** (.57, .69)
Race (vs. European American/White)												
African American/Black	−.38	.68* (.48, .97)	−.44	.65** (.47, .89)	−.45	.64** (.46, .89)	−.35	.70* (.50, .99)	−.36	.70* (.50, .98)	−.38	.68*** (.59, .79)
Asian American/Asian	−.39	.68 (.33, 1.41)	−.47	.62 (.33, 1.16)	−.12	.89 (.45, 1.76)	.10	1.10 (.62, 1.97)	−.36	.69 (.33, 1.48)	−.24	.78 (.58, 1.05)
Latinx/Hispanic	−.47	.63** (.45, .86)	−.39	.68* (.50, .92)	−.42	.66* (.47, .92)	−.23	.79 (.58, 1.10)	−.45	.64* (.45, .90)	−.39	.68*** (.59, .79)
Native American/Alaskan Native	−.06	.94 (.57, 1.56)	−.03	.97 (.57, 1.64)	−.08	.92 (.58, 1.47)	.23	1.26 (.78, 2.03)	−.36	.70 (.41, 1.21)	−.02	.98 (.78, 1.23)
Other	−1.02	.36 (.08, 1.61)	.38	1.46 (.49, 4.30)	.36	1.43 (.48, 4.26)	.56	1.75 (.41, 7.48)	−.11	.89 (.18, 4.50)	.06	1.06 (.60, 1.86)
Risk level (vs. Low)												
Moderate	.20	1.22 (.94, 1.58)	.44	1.56** (1.20, 2.01)	.43	1.54** (1.17, 2.03)	.33	1.39* (1.05, 1.85)	.24	1.27 (.95, 1.69)	.34	1.41*** (1.25, 1.59)
High	.49	1.63*** (1.26, 2.11)	.72	2.05*** (1.59, 2.65)	.64	1.89*** (1.43, 2.50)	.52	1.69*** (1.28, 2.23)	.50	1.65*** (1.26, 2.17)	.61	1.83*** (1.63, 2.07)
Trauma (yes/no)	.67	1.95*** (1.40, 2.72)	.27	1.31 (.97, 1.77)	.52	1.69** (1.17, 2.43)	.42	1.53* (1.03, 2.26)	.40	1.50* (1.03, 2.17)	.45	1.56*** (1.34, 1.83)
Mental health risk												
History of depression or other mental health problems	2.75	15.62*** (10.32, 23.64)	2.66	14.35*** (9.33, 22.07)	2.61	13.58*** (8.80, 20.97)	2.40	11.04*** (7.13, 17.09)	2.41	11.16*** (7.41, 16.78)	2.56	12.92*** (10.69, 15.61)
Intraclass correlation												
Between counties		.03		.03		.04		.01		.03		.03

* $p < .05$, ** $p < .01$, *** $p < .001$.

CI = confidence interval; OR = odds ratio.

studies recommend, particularly for low-risk and/or first-time offenders [36].

Youth entering probation for the first time in Washington reported high levels of trauma, with over two-thirds reporting at least one traumatic experience. This is consistent with what other studies have reported [21]. On average, an increasing proportion of youth reported trauma, histories of mental health problems, suicide risk, and overall risk to reoffend from 2011 to 2015. While the number of youths in the justice system has decreased over the years, practitioners and policymakers in Washington now face higher, more complex needs for youth who do enter the system. The increase observed in Washington might seem relatively small as a percentage, but it represents several hundred more youths with these problems. More epidemiological studies are needed to understand whether the increase in the percentage of youth with greater levels of needs reflect the national trend. In doing so, local and federal policies and practices can expand tested and effective programming that matches the needs of the youth to efficiently and successfully transition them out of the justice system.

This study found that for each year, histories of mental health problems significantly increased the odds of suicide risk. Moreover, controlling for mental health problems, having experienced trauma significantly increased the odds of suicide risk. Given the greater levels of mental, emotional, and behavioral health needs reflected in the population entering probation, the strength of these relationships over the years decreased. However, as the results collapsed across all years indicate, trauma and mental health problems remained significant predictors of suicide risk. As such, when discussing trauma, it is equally important to examine its association with other mental health problems and suicide risk. Youth entering the juvenile justice system should be screened for mental health problems in conjunction with trauma history, as the results can provide practitioners with additional flags for potential suicide risk. Juvenile justice youth might be receiving psychiatric evaluations for the first time, despite their serious mental health problems and trauma histories. Consistent medical records need to be kept across systems so as to detect, assess, and address suicidality. Nonpsychiatric medical staff also need to be trained so that they can make referrals in a timely manner.

TIC has been implemented in a variety of service systems in which providers assess youth's complex trauma histories and ensure the use of evidenced-based practices; in these systems, providers are continually trained on TIC [14]. While the literature addressing trauma and the need for TIC is growing, more studies are needed to assess the degree to which trauma might influence more serious mental health risks and how trauma and suicide risk should be addressed in the juvenile justice setting. Organizational/facility-level change through TIC training for juvenile justice staff has been shown to reduce violent incidents in facilities and increase program completion rates [37]. Thus, facility-wide interventions that include staff, clinicians, and youth can lead to more positive outcomes than simply targeting youth behaviors. Moreover, racial disproportionality among probationers, also reflected in Washington, must be considered when implementing various trauma-focused interventions. TIC interventions focus heavily on individual traumas and pathologies without consideration for collective environmental trauma experienced primarily by youth of color [38]. "Healing-centered" approaches help high-risk youth of color restore culture identity and well-being [38]. Future research and practice, thus, should

offer more concrete, culturally congruent approaches to dealing with trauma.

Limitations

The study is not without limitations. We used cross-sectional data, limiting the ability to make causal inference. Nevertheless, the associations and trends replicated over time provide evidence of the importance of studying trauma, suicidality, and mental health in juvenile justice settings. While time trend analyses usually include time spans longer than five years, this is the first study to assess trauma and suicide trends for the entire population of first-time probationers in a state population. Thus, the results can have statewide implications for early intervention. Not all types of trauma were assessed (e.g., severe accidents or emotional abuse), but JPCs are trained to record any other trauma not assessed specifically in the PACT; we used this additional indicator in the present study. Future studies will also benefit from assessing if certain types of trauma or adversity account for the association between trauma and suicide risk, which would enhance the efficiency of screening. Given the nature of administrative data, the study was limited to the data collected by nonresearchers/practitioners, as well as the items available in the PACT. Using existing data collected by practitioners is important in developing research evidence directly applicable to practice and policy [39], which was the goal of the present study.

Local juvenile justice jurisdiction often varies in policy practices. To address this issue, this study used multilevel models to account for potential differences across counties. In addition, the demographic makeup of youth on probation in Washington State differs from that at a national level, namely with regard to racial and ethnic diversity. While the racial disproportionality of African-American/black youth on probation is consistent with the national trend, readers should keep racial/ethnic makeup of the state in mind when generalizing the findings to other states or regions.

The measures of suicide risk and mental health problems used in this study were not based on a formal psychiatric evaluation but based on a set of questions asked to the youth directly. As is always the risk with self-reported data, suicide risk and mental health issues may be overreported or underreported. It is important to note, however, that JPCs are instructed to validate the history of mental health problems with a professional. Also, while the dichotomized measures of mental health problems and suicide risk do not reflect the complexity of the problem, the findings of the study show that the PACT may be a good screening tool to identify a need for a psychiatric evaluation. Future studies should test construct and predictive validity of the PACT in screening suicidal ideation and behaviors in comparison with other suicide-specific screening tools such as the Suicide Behavior Questionnaire [40].

Conclusion

Much work has been carried out related to trauma (e.g., TIC, trauma-informed schools) [12,14]. Yet, youth with trauma are at a high risk to be involved in the juvenile justice system, and the risk for suicide among youth in the juvenile justice system is significantly higher than among youth in the community. Studies should further define what TIC is and how this approach can be informed by empirical evidence as well as practitioner (e.g.,

frontline workers, probation officers, medical staff, counselors) expertise. It is unknown to what extent practitioners (both counselors and medical teams) working with juvenile justice youth are equipped to detect and address suicide risk. In Washington State, nine bills related to suicide prevention have been passed since 2012, one of which required suicide prevention training for all health and behavioral health providers [41]. More studies should highlight the need for more workforce training and heightened awareness for suicide prevention, especially for juvenile justice youth.

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References

- [1] Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance—United States, 2013. *MMWR Suppl* 2014;63:1–168.
- [2] Nock MK, Green JG, Hwang I, et al. Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: Results from the national comorbidity survey replication adolescent supplement. *JAMA Psychiatry* 2013;70:300–10.
- [3] Stokes ML, McCoy KP, Abram KM, et al. Suicidal ideation and behavior in youth in the juvenile justice system: A review of the literature. *J Correct Health Care* 2015;21:222–42.
- [4] Sedlak AJ, McPherson K. Survey of youth in residential placement: Youth's needs and services. SYRP Report. Rockville, MD: Westat; 2010:1–54.
- [5] Dierkhising CB, Ko S, Halladay-Goldman J. Trauma-informed juvenile justice roundtable: Current issues and directions in creating trauma-informed juvenile justice systems. Los Angeles, CA & Durham, NC: National Center for Child Traumatic Stress; 2013.
- [6] Ford JD, Chapman J, Connor DF, Cruise KR. Complex trauma and aggression in secure juvenile justice settings. *Criminal Justice Behav* 2012;39:694–724.
- [7] Dunnegan SW. Violence, trauma and substance abuse. *J Psychoactive Drugs* 1997;29:345–51.
- [8] Chapman J, Ford J. Relationships between suicide risk, traumatic experiences, and substance use among juvenile detainees. *Arch Suicide Res* 2008;12:50–61.
- [9] Peterson C, Florence C, Klevens J. The economic burden of child maltreatment in the United States, 2015. *Child Abuse Negl* 2018;86:178–83.
- [10] Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med* 1998;14:245–58.
- [11] Douglas KR, Chan G, Gelernter J, et al. Adverse childhood events as risk factors for substance dependence: Partial mediation by mood and anxiety disorders. *Addict Behav* 2010;35:7–13.
- [12] Oral R, Ramirez M, Coohy C, et al. Adverse childhood experiences and trauma informed care: The future of health care. *Pediatr Res* 2016;79:227–33.
- [13] SAMHSA-HRSA Center for Integrated Health Solutions. Trauma. Available at: <https://www.integration.samhsa.gov/clinical-practice/trauma-informed>. Accessed April 28, 2020.
- [14] Ko SJ, Ford JD, Kassam-Adams N, et al. Creating trauma-informed systems: Child welfare, education, first responders, health care, juvenile justice. *Prof Psychol Res Pract* 2008;39:396.
- [15] Abram KM, Teplin LA, King DC, et al. PTSD, trauma, and comorbid psychiatric disorders in detained youth. *Juvenile Justice Bull* 2013;1:1–13.
- [16] Baglivio MT, Epps N, Swartz K, et al. The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *J Juvenile Justice* 2014;3:1–17.
- [17] Branson CE, Baetz CL, Horwitz SM, Hoagwood KE. Trauma-informed juvenile justice systems: A systematic review of definitions and core components. *Psychol Trauma Theor Res Pract Policy* 2017;9:635–46.
- [18] Hockenberry S, Puzanhera C. Juvenile court statistics 2016. Pittsburgh, PA: National Center for Juvenile Justice; 2018. Available at: <https://www.ojdp.gov/ojstatbb/njcda/pdf/jcs2016.pdf>. Accessed April 28, 2020.
- [19] Washington State Partnership Council on Juvenile Justice. 2017 annual report to the governor and state legislature. Olympia, WA: Office of Juvenile Justice; 2017:1–37.
- [20] Caudill JW, Morris RG, Sayed SE, et al. Pathways through the juvenile justice system: Predictors of formal disposition. *Youth Violence and Juvenile Justice* 2013;11:183–95.
- [21] Ford JD, Hartman JK, Hawke J. Traumatic victimization, posttraumatic stress disorder, suicidal ideation, and substance abuse risk among juvenile justice-involved youth. *J Child Adolesc Trauma* 2008;1:75–92.
- [22] Teplin LA, Abram KM, McClelland GM, et al. Psychiatric disorders in youth in juvenile detention. *Arch Gen Psychiatry* 2002;59:1133–43.
- [23] Baglivio MT, Jackowski K. Examining the validity of a juvenile offending risk assessment instrument across gender and race/ethnicity. *Youth Violence and Juvenile Justice* 2013;11:26–43.
- [24] Barnoski R. Assessing risk for re-offense: Validating the Washington state juvenile court assessment appendices. Olympia, WA: Washington State Institute for Public Policy; 2004:1–49.
- [25] Barnoski R. Outcome evaluation of Washington State's research-based programs for juvenile offenders. Olympia, WA: Washington State Institute for Public Policy; 2004.
- [26] Baglivio MT. The assessment of risk to recidivate among a juvenile offending population. *J Crim Justice* 2009;37:596–607.
- [27] Baird C, Healy T, Johnson K, et al. A comparison of risk assessment instruments in juvenile justice. Madison, WI: National Council on Crime and Delinquency; 2013.
- [28] Naramore R, Bright MA, Epps N, Hardt NS. Youth arrested for trading sex have the highest rates of childhood adversity: A statewide study of juvenile offenders. *Sex Abuse* 2017;29:396–410.
- [29] Craig JM, Zettler HR, Wolff KT, Baglivio MT considering the mediating effects of drug and alcohol use, mental health, and their co-occurrence on the adverse childhood experiences-recidivism relationship. *Youth Violence and Juvenile Justice* 2019;17:219–40.
- [30] Barnoski R B. Washington state juvenile court assessment manual, Version 2.1. 2004. Available at: http://www.wsipp.wa.gov/ReportFile/873/Wsipp_Washington-State-Juvenile-Court-Assessment-Manual-Version-2-1_Manual.pdf. Accessed June 29, 2020.
- [31] Logan-Greene PB, Kim BKE, Nurius PS. Adversity profiles among court-involved youth: Translating system data into trauma-responsive programming. *Child Abuse Negl* 2020;104.
- [32] StataCorp. Stata statistical Software: Release 10. College Station, TX: StataCorp LP; 2007.
- [33] Washington State Department of Social and Health Services. Washington's juvenile justice system improvement planning grant. Available at: <https://www.dcyf.wa.gov/sites/default/files/pdf/WashingtonTaskforceMeetingAssessmentPresentation.pdf>. Published January 26, 2018. Accessed April 28, 2020.
- [34] Furdella J, Puzanhera C. Delinquency cases in juvenile court. Juvenile offenders and victims national report Series. Office of juvenile justice and delinquency prevention, US Department of Justice; 2015:1–4. Available at: <https://ojdp.ojp.gov/sites/g/files/xykkuh176/files/pubs/248899.pdf>. Accessed April 28, 2020.
- [35] Grand Challenges for Social Work. Ensure healthy development for all youth. GC Fact Sheet No. 1. Cleveland, OH: American Academy of Social Work & Social Welfare; 2018. Available at: <https://grandchallengesforsocialwork.org/wp-content/uploads/2015/12/180604-GC-healthy-dev.pdf>. Accessed April 9, 2020.
- [36] Development Services Group, Inc.. Diversion programs. Literature Review: A product of the model programs guide. Washington, DC: Office of Juvenile

- Justice and Delinquency Prevention. Available at: https://www.ojjdp.gov/mpg/litreviews/Diversion_Programs.pdf. Updated February 2017. Accessed April 28, 2020.
- [37] Baetz CL, Surko M, Moaveni M, et al. Impact of a trauma-informed intervention for youth and staff on rates of violence in juvenile detention settings. *J Interpers Violence* 2019. <https://doi.org/10.1177/0886260519857163>.
- [38] Ginwright S. *The future of healing: Shifting from trauma-informed care to healing centered engagement*. Occasional Paper:25. Victoria BC, Canada: Grandparents Victoria/Kinship Carers Victoria; 2018.
- [39] Proctor EK, Landsverk J, Aarons G, et al. Implementation research in mental health services: An emerging science with conceptual, methodological, and training challenges. *Adm Policy Ment Health Ment Health Serv Res* 2009;36:24–34.
- [40] Shaffer CS, Gulbransen EMD, Viljoen JL, et al. Predictive validity of the MAYSI-2 and PAI-A for suicide-related behavior and nonsuicidal self-injury among adjudicated adolescent offenders on probation. *Criminal Justice Behav* 2018;45:1383–403.
- [41] Forefront Suicide Prevention. Policy & advocacy. Available at: <http://www.intheforefront.org/programs/policy-advocacy/>. Accessed April 28, 2020.