

Mental Health Service Referral and Treatment Following Screening and Assessment in Juvenile Detention

Frank Tedeschi, MD, Sarah McCue Horwitz, PhD, Michael Surko, PhD, Emily Weinberger, PhD, Amanda Bart, MA, Carly Baetz, JD, PhD, Fei Guo, MS, Ava Alexander, MS, and Jennifer F. Havens, MD

Numerous recommendations have been made to address the high rates of mental health disorders among justice-involved youth. Few data are available on the use, quality, appropriateness, or availability of services to address these needs. This study examined the relationship between trauma-informed mental health screening, other referral pathways for diagnostic evaluation, subsequent DSM-5 diagnoses, and treatments for evaluated youth. Eligible participants were all youth admitted to New York City secure juvenile detention facilities from September 17, 2015 to October 30, 2016 who remained in the facility for at least five days ($N = 786$). Of those, 581 (73.9%) were voluntarily screened and 309 (53.2%) later received a diagnostic evaluation. Youth who screened positive for depression, post-traumatic stress disorder, and problematic substance use were more likely to be evaluated. Treatment received was related to diagnosis rather than reason for referral. For youth who were referred for behavioral or emotional concerns, 99.1 percent (114 of 115) of those diagnosed with a neurodevelopmental disorder had attention-deficit/hyperactivity disorder (ADHD). These data are among the first to describe DSM-5 diagnoses and treatment among youth detainees. They highlight the prevalence of ADHD in detained youth and argue for the coordination of universal trauma-informed mental health screening and a structured referral system for this population.

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Youth in the juvenile justice (JJ) system have high rates of mental health disorders, including disruptive behavior disorders, mood and anxiety disorders, substance abuse, and intellectual disability.¹⁻⁴ Traumatic exposure is also high, with one study reporting that 92.5 percent of youth in detention had experienced at least one trauma, 84 percent more than one, and 56 percent six or more; 10 percent of detainees met criteria for posttraumatic stress disorder (PTSD) in

the prior year.⁵ Additionally, data suggest that 79 percent of youth meeting criteria for one mental health disorder also met criteria for two or more disorders, and over 60 percent met criteria for three or more.⁴ Youth with more mental health diagnoses are more likely to be placed in institutional facilities than those with fewer diagnoses; the latter are more likely to receive probation.⁶

This population's documented mental health needs have prompted numerous recommendations for the delivery of mental health services within JJ settings.^{7,8} Standards have also been developed specifically for services within secure facilities, which emphasize mental health screening following admission, application of evidence-based interventions, staff training, and aftercare and reentry planning.^{9,10} Psychiatric medication management and drug and alcohol treatment have also been identified as components of effective mental health services in secure settings,^{11,12} and

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Dr. Tedeschi, Dr. Surko, and Dr. Baetz are Clinical Assistant Professors; Dr. Horwitz is a Professor; Mr. Guo is a research scientist; and Dr. Havens is Department Chair, Department of Child & Adolescent Psychiatry (DCAP), New York University Grossman School of Medicine, New York, New York. Dr. Weinberger is a psychology resident, Denver Health Medical Center, Denver, Colorado. Ms. Bart is an executive assistant, Brennan Center for Justice at NYU School of Law, New York, New York. Ms. Alexander is a doctoral student, Department of Psychology, University of Utah, Salt Lake City, Utah. Address correspondence to: Carly Baetz, JD, PhD; E-mail: carly.baetz@nyulangone.org.

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trauma-informed care has further emerged as a comprehensive approach for JJ-involved youth.¹³

Despite these recommendations, little data are available on the mental health services available to JJ-involved youth or on their use, quality, and appropriateness. A national survey found that, although the majority of JJ facilities employed evidence-based treatment models, there was variation in model type, frequency of delivery, and clinical staff training.¹⁴ Notably, this survey did not examine psychiatric services. An earlier survey¹² reported the percentage of youth in detention facilities who had access to various services: informal counseling, 77 percent; drug and alcohol dependency treatment, 47 percent; suicide risk reduction, 46 percent; family counseling, 41 percent; problematic sexual behaviors treatment, 21 percent; violent offending treatment, 22 percent; and fire-setting treatment, six percent. No data on the use of these services were provided.

The literature regarding mental health services specific to preadjudication juvenile detention populations is similarly scant. A 1999 survey of facility directors found that 40 to 50 percent of detainees in some facilities were prescribed psychotropic medications.¹⁵ Teplin and colleagues found that only 15.4 percent of juvenile detainees with a major mental disorder and associated functional impairment received timely treatment in the detention center.¹⁶ Other surveys and meta-analyses have focused largely on postadjudication facilities or have failed to comment on the appropriateness and quality of services.^{14,17}

Data for the current study were obtained from a New York City (NYC) mental health team contracted in 2014 to provide psychiatric and psychological services to youth housed in NYC's secure and nonsecure juvenile detention centers, in collaboration with an existing NYC-contracted masters-level mental health team that provided counseling in the facilities. The clinical service was embedded within the ongoing implementation of trauma-informed care in NYC's detention system.^{13,18} All youth admitted to detention were offered a mental health screening by masters-level clinicians using a screening battery designed to improve identification of trauma-related symptoms and syndromes.¹⁸ Youth with positive screens were referred for diagnostic evaluation by a licensed psychologist or board-certified child and adolescent psychiatrist, psychiatric medication management as indicated, and individual therapy.

The objectives of this study were to examine the relationship between trauma-informed mental health screening results and receipt of services, and to characterize Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnoses and treatments received, thus providing detailed service data unavailable in the extant literature.

Methods

Population

Participants were drawn from 1,638 consecutive admissions to secure juvenile detention (preadjudication) in NYC between September 17, 2015 and October 30, 2016. At the time of data collection, juvenile detention in NYC only included youth charged with offenses allegedly committed prior to age 16. Of these, 786 remained in a facility for five or more days, allowing time to complete mental health screening. Of these, 581 (73.9%) were voluntarily screened within 30 days of admission.

Procedure

Youth entering juvenile detention completed a medical intake within 24 hours of admission, which included an assessment for emergent medical or mental health concerns. All residents were then offered an additional mental health intake and screening by masters-level mental health clinicians within five to eight days of admission. Youth were encouraged to complete the mental health intake and screening, although it was voluntary and could be declined. The mental health intake included demographic characteristics, psychosocial information, and validated self-report measures of trauma exposure, posttraumatic symptoms, depression, and problematic substance use. Youth completed the measures verbally, in writing, or through a combination thereof based on their preference and the clinician's judgment of their reading ability. Screening results were made available to the treatment team of psychiatrists, psychologists, and masters-level clinicians, and referrals were generated for residents with significant symptoms on any measure.¹⁸ Referrals could also be generated independently of the mental health screening and intake process at any point following admission for youth exhibiting significant emotional or behavioral problems, or a history of prescribed psychotropic medication, and for treatment recommendations following adjudication. Nonreferred youth were offered

counseling. For those who declined mental health services, informal engagement efforts continued throughout their stay.

Institutional Review Boards of the New York University School of Medicine and the New York City Administration for Children's Services provided approval for the retrospective analysis of these data. Because the study involved analysis of data collected as part of usual clinical practice, a waiver of informed consent was granted.

Measures

Trauma History and PTSD Symptoms

The UCLA PTSD Reaction Index for the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) is a 49-item self-report questionnaire that assesses exposure to potentially traumatic events and PTSD symptoms in school-aged children and adolescents.^{19,20} Respondents rate the frequency of symptoms corresponding to Criteria B (Intrusion), C (Avoidance), and D (Arousal) for the past month. Scoring algorithms produce a total symptom score as well as Intrusion, Avoidance, and Arousal subscale scores and full PTSD (Criteria B, C, and D all present) or partial PTSD (B + C, C + D, or B + D present) screening indications. The total symptom scale displayed good to excellent internal consistency in these studies across age ranges, sex, and racial or ethnic groups ($\alpha = .88-.91$). The Intrusion ($\alpha = .71-.86$) and Avoidance subscales ($\alpha = .73-.80$) showed acceptable to good consistency, and the Arousal subscale showed weaker internal consistency ($\alpha = .61-.71$).^{19,20} The total symptom scale was also strongly correlated ($r = .75$) with the Posttraumatic Stress scale of the Trauma Symptom Checklist for Children-Alternative, indicating good convergent validity.²¹ For the analyses in the present study, screening results of either full or partial PTSD were considered to indicate the likely presence of significant posttraumatic symptoms.

Depressive Symptoms

The Patient Health Questionnaire-9 (PHQ-9) is a nine-item self-report questionnaire that serves as the depression module of a larger health assessment instrument designed for medical settings.²² Each item scores one of the nine DSM-IV major depressive disorder diagnostic criteria from 0 ("not at all") to 3 ("nearly every day"). Suicidal and self-harm

ideation is addressed through a question that asks respondents if they have had, in the prior two weeks, "thoughts that you would be better off dead, or of hurting yourself." The internal reliability was excellent in both primary care and obstetrics-gynecology settings ($\alpha = .86-.89$).²² Compared with diagnosis by a mental health professional, a PHQ-9 score had a sensitivity of .88 and a specificity of .88 for major depression in a sample of adolescents receiving routine medical care.²³ In the present study, scores were divided into absent or mild depression (0-9), moderate depression (10-14), and severe depression (this last category was created by joining the PHQ-9 categories of moderately severe and severe depression; 15 or higher).

Problematic Substance Use

The CRAFFT is a six-item screening tool specifically designed to identify adolescents in medical settings who need substance use assessment.²⁴ In a sample of 14- to 18-year-olds receiving routine health care, the CRAFFT demonstrated acceptable internal consistency ($\alpha = .68$), and the CRAFFT score was significantly correlated with severity of substance-related problems (Spearman $\rho = .71$).²⁴ The receiver operating characteristic areas for the CRAFFT were high for substance-related problem (.92), substance-related diagnosis (.90), and substance dependence (.93).²⁴

Detainee Status

Detained youth were classified by JJ authorities as juvenile delinquent (JD; youth aged 7-15 charged with a delinquent act as a juvenile in family court), juvenile offender (JO; youth aged 13-15 charged in adult court for certain categories of severe or violent felonies), and "other" (youth detained for other reasons, primarily because of elopement from prior placement or charges in another jurisdiction).

Reason for Referral

Youth were referred for evaluation for one of three reasons (pathways): positive screen because of elevated scores on intake screening measures (+SCREEN); mental health or behavioral problems in detention, or entering detention with current psychotropic medication regimens (+MH or BEH); and mandated diagnostic evaluation for treatment planning purposes for youth with family court dispositions (i.e., sentences) of residential placement managed by the NYC Administration for Children's Services (ACS)

through its Close to Home program (PLACE). PLACE evaluations were preferentially assigned to psychologists; psychiatrists performed evaluations when a psychologist was not available.

Medications

Medications at baseline and throughout treatment were abstracted through review of individual treatment records by one author (E.W.) and subsequently classified into broader categories by the first author. Polypharmacy was defined as the prescription for more than one psychotropic medication in a 30-day period, a generally accepted definition of polypharmacy in the pediatric population.

Diagnoses

DSM-5 diagnoses were initially made by a psychiatrist or psychologist following the youth's evaluation. Diagnoses were clinician generated and did not result from the use of a structured diagnostic instrument. For purposes of the current study, these diagnoses were abstracted through review of individual treatment records by one author (E.W.) and were subsequently classified into DSM-5 categories by the first author.

Services Received

Number of sessions of counseling with a masters-level clinician, medication management, and psychotherapy with a licensed psychologist or board-certified child and adolescent psychiatrist were abstracted by one author (E.W.) through review of individual treatment records. Family involvement in mental health treatment was encouraged and pursued but is not reported in this study given that family participation was highly variable.

Data Analysis

Univariate statistics were used to describe the socio-demographic characteristics and service utilization of all youth screened. Bivariate analyses, such as the chi-squared test or Fisher's exact test where appropriate, were performed to examine differences between subjects who were evaluated and those who were not evaluated (Table 1). Among youth receiving diagnostic evaluation, similar bivariate analyses were performed to examine differences between the patients with different referral pathways (Table 2). The relationship between services received and diagnoses was examined using chi-squared tests or Fisher's exact test (Table 3).

Results

Of 581 youth screened, 309 (53.2%) received a diagnostic evaluation (Table 1). The youth evaluated were 76.1 percent male and 59.9 percent Black, 60.5 percent were 15 or older, and 83.2 percent had JD status. There were no statistically significant differences between recipients and nonrecipients of evaluation with regard to sex, age, race or ethnicity, or detainee status. Youth receiving evaluation had higher rates of positivity than youth who were not evaluated on screens for PTSD (16.9% versus 5.5%; $p < .001$), moderate to severe depression (16.5% versus 6.2%; $p < .001$), and problematic substance use (53.4% versus 39.7%; $p = .001$).

Prevalence of referral reasons were as follows (Table 2): 60.2 percent +MH or BEH, 19.1 percent +SCREEN, and 20.7 percent PLACE. Referral reasons did not differ significantly by sex, age, or race or ethnicity. There were significant differences in likelihood of JD status among PLACE youth (95.2%), +MH or BEH youth (82.8%), and +SCREEN youth (72.9%; Fisher's exact test; $p = .002$).

Rates of trauma-related diagnoses differed significantly between +SCREEN youth, +MH or BEH youth, and PLACE youth (76.3% versus 33.9% and 48.4%, respectively; chi-square test, $p < .001$), as did depressive diagnoses (27.1% versus 12.4% and 6.2%, respectively; chi-square test, $p = .002$). Neurodevelopmental disorder diagnosis rates also varied significantly among MH or BEH youth (61.8%), +SCREEN youth (47.5%), and PLACE youth (23.4%; chi-square test, $p < .001$). The neurodevelopmental diagnostic category includes intellectual disabilities, communication disorders, attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder, specific learning disorder, and motor disorders,²⁵ but among these, ADHD was most prevalent, at 95.6 percent (151 of 158) of neurodevelopmental disorder diagnoses overall and 99.1 percent (114 of 115) among MH or BEH youth diagnosed with a neurodevelopmental disorder. The disruptive behavior disorder diagnostic category includes all disruptive, impulse-control, and conduct disorders as defined by the DSM-5.

Types of treatment received (counseling, medication only, therapy only, medication and therapy) did not significantly differ by referral reason (Table 2). Prescription rates for antidepressant medications did vary significantly between referral groups (15.3% for +SCREEN, 5.4% for +MH or BEH, and .0% for

Table 1 Sociodemographics of Youth Screened

	Total Youth Screened ^a		Youth Not Evaluated		Youth Evaluated ^b		<i>p</i>
	<i>n</i>	(%) ^c	<i>n</i>	(%) ^c	<i>n</i>	(%) ^c	
Total	581	—	272	—	309	—	—
Sex	—	—	—	—	—	—	0.370 ^d
Female	131	(22.5)	57	(21.0)	74	(23.9)	—
Male	449	(77.3)	214	(78.7)	235	(76.1)	—
Trans/female	1	(0.2)	1	(0.4)	0	(0.0)	—
Age	—	—	—	—	—	—	0.871 ^e
12–14	229	(39.8)	108	(40.3)	121	(39.3)	—
15+	347	(60.2)	160	(59.7)	187	(60.7)	—
Missing	5	—	4	—	1	—	—
Race or ethnicity	—	—	—	—	—	—	0.368 ^d
Black	365	(63.5)	180	(66.7)	185	(60.7)	—
Hispanic	178	(31.0)	73	(27.0)	105	(34.4)	—
White	18	(3.1)	9	(3.3)	9	(3.0)	—
Asian or Pacific Islander	11	(1.9)	6	(2.2)	5	(1.6)	—
Other	3	(0.5)	2	(0.7)	1	(0.3)	—
Missing	6	—	2	—	4	—	—
Detainee status	—	—	—	—	—	—	0.227 ^e
JD	481	(83.5)	224	(83.6)	257	(83.4)	—
JO	80	(13.9)	34	(12.7)	46	(14.9)	—
Other	15	(2.6)	10	(3.7)	5	(1.6)	—
Missing	5	—	4	—	1	—	—
Screening results	—	—	—	—	—	—	—
PTSD	67	(11.5)	15	(5.5)	52	(16.9)	<0.001 ^e
Depression	—	—	—	—	—	—	<0.001 ^e
Absent or mild	513	(88.3)	255	(93.8)	258	(83.5)	—
Moderate	51	(8.8)	14	(5.1)	37	(12.0)	—
Severe	17	(2.9)	3	(1.1)	14	(4.5)	—
Problematic substance use	273	(47.0)	108	(39.7)	165	(53.4)	0.001 ^e

JD = juvenile delinquent; JO = juvenile offender; PTSD = posttraumatic stress disorder.

^a Refers to youth who received an initial screening after admission to the detention facility.

^b Refers to youth who received a diagnostic evaluation after the initial screening.

^c Refers to column percentages within the category.

^d Fisher’s exact tests were performed.

^e Chi-squared tests were performed.

PLACE; see Table 2). Additionally, youth with an ADHD diagnosis were significantly more likely to receive both medication management and therapy (Table 3; $p < .001$). Although there was a trend suggesting varying levels of intervention for individuals diagnosed with disruptive, impulse-control, and conduct disorders, this was not statistically significant ($p = .076$). This pattern might suggest that the path of treatment within this group could be influenced by factors such as comorbid conditions.

Discussion

Youth in the present study were predominantly male and Black or Hispanic, which is consistent with the demographics of youth in the U.S. and NYC JJ systems.^{26,27} No significant sociodemographic differences were found between youth who were

diagnostically evaluated and those who were not, suggesting that the drivers of evaluation are symptoms, behaviors, or the need for discharge and placement planning. Although previous studies have suggested that individuals with more severe charges may have more severe depressive or posttraumatic symptoms on screening,²⁸ the present study found no association between detainee status, including level of legal charge, and positive mental health screens. One possible explanation is that JDs and JOs have similar psychosocial risk factors for depression and posttraumatic symptomology overall, which themselves do not correlate with particular patterns of offending.

Youth screening positive for posttraumatic and depressive symptomatology and problematic substance use were more likely to be evaluated, suggesting

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Table 2 Sociodemographics of Youth Evaluated^a

	Total		Referred for Evaluation Because of Elevated Score (+SCREEN)		Referred for Evaluation for Other Reasons (+MH or BEH)		Placement Evaluation Only (PLACE)		<i>p</i>
	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	
Total	309	—	59	(19.1)	186	(60.2)	64	(20.7)	—
Sex	—	—	—	—	—	—	—	—	0.103 ^c
Female	74	(23.9)	17	(28.8)	48	(25.8)	9	(14.1)	—
Male	235	(76.1)	42	(71.2)	138	(74.2)	55	(85.9)	—
Age	—	—	—	—	—	—	—	—	0.500 ^c
12-14	121	(39.3)	21	(35.6)	78	(41.9)	22	(34.9)	—
15+	187	(60.7)	38	(64.4)	108	(58.1)	41	(65.1)	—
Missing	1	—	0	—	0	—	1	—	—
Race or ethnicity	—	—	—	—	—	—	—	—	0.817 ^d
Black	185	(60.7)	33	(56.9)	107	(58.5)	45	(70.3)	—
Hispanic	105	(34.4)	23	(39.7)	65	(35.5)	17	(26.6)	—
White	9	(3.0)	2	(3.4)	6	(3.3)	1	(1.6)	—
Asian or Pacific Is	5	(1.6)	0	(0.0)	4	(2.2)	1	(1.6)	—
Other	1	(0.3)	0	(0.0)	1	(0.5)	0	(0.0)	—
Missing	4	—	1	—	3	—	0	—	—
Detainee status	—	—	—	—	—	—	—	—	0.002 ^d
JD	257	(83.4)	43	(72.9)	154	(82.8)	60	(95.2)	—
JO	46	(14.9)	16	(27.1)	28	(15.1)	2	(3.2)	—
Other	5	(1.6)	0	(0.0)	4	(2.2)	1	(1.6)	—
Missing	1	—	0	—	0	—	1	—	—
Screening Results									
PTSD	52	(16.8)	43	(72.9)	7	(3.8)	2	(3.1)	<0.001 ^c
Depression	—	—	—	—	—	—	—	—	<0.001 ^c
Absent or mild	258	(83.5)	24	(40.7)	171	(91.9)	63	(98.4)	—
Moderate	37	(12)	21	(35.6)	15	(8.1)	1	(1.6)	—
Severe	14	(4.5)	14	(23.7)	0	(0.0)	0	(0.0)	—
Problematic substance use	165	(53.4)	36	(61)	99	(53.2)	30	(46.9)	0.290 ^c
Diagnosis									
Disruptive behavior	230	(74.4)	38	(64.4)	140	(75.3)	52	(81.2)	0.093 ^c
Substance related	169	(54.7)	29	(49.2)	102	(54.8)	38	(59.4)	0.522 ^c
Neurodevelopmental	158	(51.1)	28	(47.5)	115	(61.8)	15	(23.4)	<0.001 ^c
Trauma related	139	(45.0)	45	(76.3)	63	(33.9)	31	(48.4)	<0.001 ^c
Depressive	43	(13.9)	16	(27.1)	23	(12.4)	4	(6.2)	0.002 ^c
Anxiety	7	(2.3)	3	(5.1)	2	(1.1)	2	(3.1)	0.090 ^d
Psychotic	5	(1.6)	1	(1.7)	4	(2.2)	0	(0.0)	0.689 ^d
Bipolar	3	(1.0)	0	(0.0)	3	(1.6)	0	(0.0)	0.774 ^b
Sleep-wake	1	(0.3)	0	(0.0)	1	(0.5)	0	(0.0)	1.000 ^b
Obsessive-compulsive	1	(0.3)	0	(0.0)	1	(0.5)	0	(0.0)	1.000 ^b
Other conditions	60	(19.4)	5	(8.5)	30	(16.1)	25	(39.1)	<0.001 ^c
Insufficient data	141	(45.6)	20	(33.9)	86	(46.2)	35	(54.7)	0.067 ^c
Non-DSM-5 diagnoses	23	(7.4)	6	(10.2)	10	(5.4)	7	(10.9)	0.200 ^d
Medical diagnosis	1	(0.3)	0	(0.0)	1	(0.5)	0	(0.0)	1.000 ^d
Treatment modality									
Med management only	18	(5.8)	2	(3.4)	16	(8.6)	0	(0.0)	0.256 ^{d,e}
Therapy only	16	(5.2)	4	(6.8)	12	(6.5)	0	(0.0)	1.000 ^{d,e}
Med management + therapy	112	(36.2)	28	(47.5)	84	(45.2)	0	(0.0)	0.874 ^{c,e}
Medication type									
Psychostimulant	76	(24.6)	15	(25.4)	61	(32.8)	0	(0.0)	0.365 ^{c,e}
Sleep aid	46	(14.9)	12	(20.3)	34	(18.3)	0	(0.0)	0.872 ^{c,e}
Alpha-2 agonist	38	(12.3)	7	(11.9)	31	(16.7)	0	(0.0)	0.496 ^{c,e}
Antipsychotic	29	(9.4)	3	(5.1)	26	(14.0)	0	(0.0)	0.107 ^{c,e}
Antidepressant	19	(6.1)	9	(15.3)	10	(5.4)	0	(0.0)	0.028 ^{c,e}

Table 2 Continued

	Total		Referred for Evaluation Because of Elevated Score (+SCREEN)		Referred for Evaluation for Other Reasons (+MH or BEH)		Placement Evaluation Only (PLACE)		<i>p</i>
	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	<i>n</i>	(%) ^b	
Mood stabilizer	7	(2.3)	1	(1.7)	6	(3.2)	0	(0.0)	1.000 ^{d,e}
Other	10	(3.2)	2	(3.4)	8	(4.3)	0	(0.0)	1.000 ^{d,e}
Classes of medications	—	—	—	—	—	—	—	—	0.285 ^{d,e}
0	171	(55.3)	30	(50.8)	77	(41.4)	64	(100)	—
1	73	(23.6)	15	(25.4)	58	(31.2)	0	(0.0)	—
2	51	(16.5)	9	(15.3)	42	(22.6)	0	(0.0)	—
3	8	(2.6)	4	(6.8)	4	(2.2)	0	(0.0)	—
4	4	(1.3)	1	(1.7)	3	(1.6)	0	(0.0)	—
5	2	(0.6)	0	(0.0)	2	(1.1)	0	(0.0)	—
Number of medications	—	—	—	—	—	—	—	—	0.543 ^{d,e}
0	171	(55.3)	30	(50.8)	77	(41.4)	64	(100)	—
1	69	(22.3)	12	(20.3)	57	(30.6)	0	(0.0)	—
2	50	(16.2)	11	(18.6)	39	(21)	0	(0.0)	—
3	11	(3.6)	4	(6.8)	7	(3.8)	0	(0.0)	—
4	4	(1.3)	1	(1.7)	3	(1.6)	0	(0.0)	—
5	3	(1)	1	(1.7)	2	(1.1)	0	(0.0)	—
6	1	(0.3)	—	—	1	(0.5)	0	(0.0)	—
Number of counseling sessions	—	—	—	—	—	—	—	—	<0.001 ^c
0	84	(27.2)	10	(16.9)	41	(22.0)	33	(51.6)	—
1-5	123	(39.8)	26	(44.1)	74	(39.8)	23	(35.9)	—
6-10	35	(11.3)	6	(10.2)	28	(15.1)	1	(1.6)	—
11-20	39	(12.6)	10	(16.9)	26	(14.0)	3	(4.7)	—
21+	28	(9.1)	7	(11.9)	17	(9.1)	4	(6.2)	—

DSM-5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; JD = juvenile delinquent; JO = juvenile offender; PTSD = posttraumatic stress disorder.

^a Refers to youth who received a diagnostic evaluation following the initial screening.

^b Refers to column percentages within the category.

^c Chi-squared tests were performed for the other variables.

^d Fisher's exact tests were performed for these variables.

^e The contrast was only between youth referred for evaluation because of elevated score and youth referred for evaluation because of other reasons.

Table 3 Diagnosis among Evaluated Youth by Type of Treatment

	Total Evaluated 309	Type of Treatment Provided				<i>p</i>
		No Med Management or Therapy 163	Med Management + Therapy 112	Med Management Only 18	Therapy Only 16	
Diagnosis	<i>n</i>	<i>n</i> (%) ^a	<i>n</i> (%) ^a	<i>n</i> (%) ^a	<i>n</i> (%) ^a	—
Trauma related	139	81 (58.3)	44 (31.7)	7 (5.0)	7 (5.0)	0.360 ^b
Substance related	169	92 (54.4)	58 (34.3)	12 (7.1)	7 (4.1)	0.494 ^b
Neurodevelopmental	158	60 (38.0)	80 (50.6)	11 (7.0)	7 (4.4)	<0.001 ^b
ADHD ^c	151	53 (35.1)	80 (53.0)	11 (7.3)	7 (4.6)	<0.001 ^b
Disruptive behavior	230	124 (53.9)	82 (35.7)	16 (7.0)	8 (3.5)	0.076 ^d
Depressive	43	20 (46.5)	16 (37.2)	5 (11.6)	2 (4.7)	0.358 ^d

ADHD = attention-deficit/hyperactivity disorder.

^a The percentage of evaluated youth within each diagnosis category who received each type of treatment.

^b Chi-squared tests were performed for these variables.

^c ADHD is presented as a subset within the neurodevelopmental category because of its high prevalence.

^d Fisher's exact tests were performed for these variables.

that the universal trauma-informed screening program helped connect higher need youth with mental health intervention. The majority of referrals that led to

diagnostic evaluations were not generated by screening, however, but by mental health or behavioral problems observed after admission, suggesting that

a greater range of instruments might be needed to detect all mental health needs. One consideration would be the use of a screening tool for anxiety, not only because of the prevalence of a history of trauma in this population but also the stress associated with adjustment to the detention milieu and court involvement. There is also benefit to the early identification of intellectual disability in detained youth, given its high prevalence.²

Another recommended addition would be a screening tool for ADHD specifically. ADHD is more prevalent in incarcerated adolescents than the general population²⁹ and has been linked to numerous negative outcomes.³⁰ Comorbid ADHD and conduct disorder have also been linked with higher risk of developing delinquent behaviors, greater severity of behaviors, and increased recidivism.^{31,32} Pharmacological intervention for ADHD has been associated with significant decreases in conviction and incarceration.³³ Although numerous screening tools exist for ADHD in community settings, the authors found no evidence-based tools designed specifically for the JJ population or for use in detention settings. The development and use of specialized screeners validated for this population could allow increased identification of ADHD on admission, prior to the observation of disruptive behaviors in the facility. In using such a tool, the incorporation of collateral information from individuals (parents, family, case-workers, teachers, prior providers) who had observed the youth's behaviors in multiple settings would play an important role, as this is a required component of ADHD diagnosis. In addition, we strongly advocate for the application of evidence-based pharmacological principles to treat ADHD in the detention setting, including the use of psychostimulants. Although there is a risk of diversion of medications in juvenile detention, the use of liquid, sprinkle, and crushed stimulant formulations can greatly reduce this risk, especially when combined with greater supervision by medical and facility staff during medication administration.

The rate of antidepressant medication prescription was nearly three times higher for youth referred because of elevated screening scores compared with other referral reasons. This suggests that many youth with depression were effectively identified by screening and referred for ongoing treatment of depressive symptoms, which often included use of antidepressant medications dependent on factors such as patient and

guardian consent, medical contraindications, or greater clinical need to start a different medication class first. The lack of correlation between prescription of other medications and the path of referral likely connects to a larger observed trend: that the type of treatment received did not correlate with the referral pathway. This suggests that treatment modalities were driven by diagnosis on evaluation rather than referral type. Similarly, medications prescribed were determined by diagnosis following referral. Treatment of both PTSD and substance use disorders in adolescents is less reliant on pharmacological interventions than other disorders. Appropriate pharmacological interventions for PTSD are varied and target different symptoms. Thus, a referral for elevated PTSD scores does not correlate significantly with a single medication class. Youth referred because of elevated CRAFFT scores were prescribed medications only for other comorbid disorders diagnosed. This is consistent with the prevalence of comorbidity in this population, where youth referred for elevated symptoms in one domain may subsequently require treatment for other diagnoses. The association between elevated depression screening scores and the prescription of antidepressants is consistent with treatment guidelines, because antidepressants are recommended regardless of comorbid diagnoses with the exception of bipolar disorder.³⁴

Youth with neurodevelopmental disorder diagnoses were more likely to receive both medication management and individual therapy, which can largely be attributed to the preponderance of ADHD in this group. Established practice parameters for the treatment of ADHD emphasize both pharmacological and behavioral interventions.³⁵ In contrast, evidence-based interventions for disruptive, impulse-control, and conduct disorders focus on behavioral and family interventions and engaging multiple systems of support in the community rather than pharmacological interventions.^{36,37} For neurodevelopmental disorders other than ADHD in the present study (specific learning disorders, autism spectrum disorder, intellectual disability), consideration was given to the degree of impairment in the detention setting and the presence of comorbid diagnoses in determining which interventions were utilized.

The fact that most referrals for diagnostic evaluations resulted from behavioral observations following admission and not from intake mental health screening is notable and could lead one to question the utility of mental health screening for this population.

The importance of trauma-informed mental health screening in the detention setting cannot be overstated, as it not only provides an avenue for the rapid identification of mental health concerns on admission but also serves several other purposes. Mental health treatment is but one modality of care that is provided to youth in custody. Youth may decline to complete a diagnostic evaluation or receive ongoing mental health services and instead seek support from other sources in detention settings, including case management, programming or academic staff, or security staff in their housing areas. In situations such as these, the information obtained from mental health screening allows clinicians to advocate for youth or support other disciplines in the care of youth, even if those youth are not being formally followed for mental health services. For those youth who do receive formal mental health treatment, the mental health screening also allows for early identification of treatment goals and is used as the nucleus of an ongoing treatment plan.

Strengths of this study include a universal screening program using validated measures in a population sociodemographically similar to the U.S. JJ population. Additionally, examination of service utilization within a relatively robust clinical service allows a detailed understanding of treatment needs and means of case identification that to our knowledge is not available elsewhere in the extant literature. There are also several limitations. First, these data were collected in one geographical location. Although this population is similar to the U.S. JJ population with regard to sex and race or ethnicity, it did not include youth charged with offenses committed after reaching age 16, making the findings less generalizable to other jurisdictions. Second, diagnoses generated by the evaluating psychiatrists and psychologists were not confirmed by structured diagnostic instruments, which could have led to inconsistencies. Third, differing service platforms and capacities for detecting and treating mental health challenges across preadjudication facilities may limit generalizability of findings about services provided and relationships of diagnoses to interventions delivered. Finally, for youth who were not evaluated following referral ($n = 272$; 47%), factors preventing evaluation (e.g., refusal, release prior to availability for evaluation) were not systematically recorded.

The following recommendations are made for future studies. As diagnoses were generated by one

evaluating clinician, the use of two clinicians or a structured diagnostic instrument to generate diagnoses would reduce rater bias. Ideally, this would incorporate the role of a screening clinician who could also make DSM-5 diagnoses during a screening evaluation, for example, when it was clear that the screening would result in a referral for further evaluation. Implementation of a tracking system for characterizing the factors that prevent completion of an evaluation would also help identify means to improve completion rates, such as greater family engagement, improved communication with attorneys and courts, and implementation of additional interventions and supports following a youth refusal. Tracking of the time between completion of a diagnostic evaluation and the initiation of ongoing treatment is recommended, including identification of factors that could delay access to treatment. Consideration for expanding data collection to other jurisdictions and JJ detention sites could additionally improve generalizability, although this would necessitate the creation and coordination of a uniform screening and treatment model.

Conclusion

This study is among the first to describe the prevalence of clinician-derived DSM-5 diagnoses in juvenile detention and the influence of those diagnoses on the mental health services received by youth. Diagnoses in the families of trauma- and stressor-related disorders, substance-related and addictive disorders, ADHD, and conduct disorders were highly prevalent. The nature of the treatment provided was determined not by referral pathway but by diagnoses determined during diagnostic evaluation. Within neurodevelopmental disorders, high rates of untreated ADHD were found and were most often identified through referrals for behavioral problems. This indicates a need to effectively detect and treat this disorder given the challenges that it poses in the detention setting, the ramifications of untreated ADHD on youths' future success in the community, and their risk of recidivism. Finally, these results support the need for, and utility of, universal trauma-informed mental health screening used in concert with a multifaceted referral system to provide access to mental health services in this high-need population.

References

1. Fazel S, Doll H, Langstrom N. Mental health disorders among adolescents in juvenile detention and correctional facilities: A

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- systemic review and metaregression analysis of 25 surveys. *J Am Acad Child Adolesc Psychiatry*. 2008; 48(9):1010–9
2. Wierson M, Forehand RL, Frame CL. Epidemiology and treatment of mental health problems in juvenile delinquents. *Adv Behav Res Ther*. 1992; 14(2):93–120
 3. Teplin LA, Abram KM, McClelland GM, *et al*. Psychiatric disorders in youth in juvenile detention. *Arch Gen Psychiatry*. 2002; 59(12):1133–43
 4. Shufelt JL, Coccozza JJ. Youth with mental health disorders in the juvenile justice system: Results from a multi-state prevalence study [Internet]; 2006. Available from: [https://sites.unicef.org/tdad/usmentalhealthprevalence06\(3\).pdf](https://sites.unicef.org/tdad/usmentalhealthprevalence06(3).pdf). Accessed March 4, 2023
 5. Abram KM, Teplin LA, King DC, *et al*. PTSD, trauma, and comorbid psychiatric disorders in detained youth [Internet]; 2013. Available from: <https://ojdp.ojp.gov/sites/g/files/xyckuh176/files/pubs/239603.pdf>. Accessed March 4, 2023
 6. Lyons JS, Royce Baerger D, Quigley P, *et al*. Mental health service needs of juvenile offenders: A comparison of detention, incarceration, and treatment settings. *Child Serv Soc Policy Res Pract*. 2001; 4(2):69–85
 7. Skowrya KR, Coccozza JJ. Blueprint for change: A comprehensive model for the identification and treatment of youth with mental health needs in contact with the juvenile justice system [Internet]; 2007. Available from: https://njjn.org/uploads/digital-library/resource_349.pdf. Accessed March 4, 2023
 8. National Mental Health Association. Mental health treatment for youth in the juvenile justice system: A compendium of promising practices [Internet]; 2004. Available from: <https://cdn.filestackcontent.com/Rn7wYKutQjWmi6SChKrB>. Accessed April 21, 2023
 9. Wasserman GA, Jensen PS, Ko SJ, *et al*. Mental health assessments in juvenile justice: Report on the Consensus Conference. *J Am Acad Child Adolesc Psychiatry*. 2003; 42(7):752–61
 10. Underwood LA, Warren KM, Talbott L, *et al*. Mental health treatment in juvenile justice secure care facilities: Practice and policy recommendations. *J Forensic Psychol P*. 2014; 14(1):55–85
 11. Underwood LA, Phillips A, Von Dresner K, Knight PD. Critical factors in mental health programming for juveniles in corrections facilities. *Int J Behav Consult Ther*. 2006; 2(1):107–40
 12. Desai RA, Goulet JL, Robbins J, *et al*. Mental health care in juvenile detention facilities: A review. *J Am Acad Psychiatry Law*. 2006 Jun; 34(2):204–14
 13. Branson CE, Baetz CL, Horwitz SM, Hoagwood KE. Trauma-informed juvenile justice systems: A systematic review of definitions and core components. *Psychol Trauma*. 2017; 9(6):635–46
 14. Swank JM, Gagnon JC. Mental health services in juvenile correctional facilities: A national survey of clinical staff. *J Child Fam Stud*. 2016; 25(9):2862–72
 15. Griffin P. Assessing detained youth in Pennsylvania [Internet]; 2000. Available from: <http://www.ncjj.org/PDF/dec2000.pdf>. Accessed March 4, 2023
 16. Teplin LA, Abram KM, McClelland GM, *et al*. Detecting mental disorder in juvenile detainees: Who receives services. *Am J Public Health*. 2005; 95(10):1773–80
 17. Haefel GJ, Hein S, Square A, *et al*. Evaluating a social problem solving intervention for juvenile detainees: Depressive outcomes and moderators of effectiveness. *Dev Psychopathol*. 2017 Aug; 29(3):1035–42
 18. McNair FD, Havens J, Surko M, *et al*. Post-traumatic stress and related symptoms among juvenile detention residents: Results from intake screening. *Child Abuse Negl*. 2019; 92:22–31
 19. Steinberg AM, Brymer MJ, Kim S, *et al*. Psychometric properties of the UCLA PTSD reaction index: Part I. *J Trauma Stress*. 2013; 26(1):1–9
 20. Elhai JD, Layne CM, Steinberg AM, *et al*. Psychometric properties of the UCLA PTSD reaction index. Part II: Investigating factor structure findings in a national clinic-referred youth sample. *J Trauma Stress*. 2013; 26(1):10–8
 21. Briere J. *Trauma Symptom Checklist for Children (TSCC)*. Odessa, FL: Psychological Assessment Resources; 1996
 22. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med*. 2001; 16(9):606–13
 23. Richardson LP, McCauley E, Grossman DC, *et al*. Evaluation of the Patient Health Questionnaire-9 Item for detecting major depression among adolescents. *Pediatrics*. 2010; 126(6):1117–23
 24. Knight JR, Sherritt L, Shrier LA, *et al*. Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Arch Pediatr Adolesc Med*. 2002; 156(6):607–14
 25. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Washington, DC: American Psychiatric Association; 2013
 26. Sickmund M, Puzzanchera C, editors. *Juvenile Offenders and Victims: 2014 National Report*. Pittsburgh, PA: National Center for Juvenile Justice; 2014
 27. Li W, Zheng P, Huynh M, *et al*. Summary of vital statistics, 2016 [Internet]; 2018. Available from: <https://www.nyc.gov/assets/doh/downloads/pdf/vs/2016sum.pdf>. Accessed April 21, 2023
 28. Teplin LA. Detecting disorder: The treatment of mental illness among jail detainees. *J Consult Clin Psychol*. 1990; 58(2):233–6
 29. Young S, Moss D, Sedgwick O, *et al*. A meta-analysis of the prevalence of attention deficit hyperactivity disorder in incarcerated populations. *Psychol Med*. 2015; 45(2):247–58
 30. Erskine HE, Norman RE, Ferrari AJ, *et al*. Long-term outcomes of attention-deficit/hyperactivity disorder and conduct disorder: A systematic review and meta-analysis. *J Am Acad Child Adolesc Psychiatry*. 2016; 55(10):841–50
 31. De Sanctis VA, Nomura Y, Newcorn JH, Halperin JM. Childhood maltreatment and conduct disorder: Independent predictors of criminal outcomes in ADHD youth. *Child Abuse Negl*. 2012; 36(11-12):782–9
 32. Sibley MH, Pelham WE, Molina BS, *et al*. The delinquency outcomes of boys with ADHD with and without comorbidity. *J Abnorm Child Psychol*. 2011; 39(1):21–32
 33. Mohr-Jensen C, Müller Bisgaard C, Boldsen SK, Steinhausen HC. Attention-deficit/hyperactivity disorder in childhood and adolescence and the risk of crime in young adulthood in a Danish nationwide study. *J Am Acad Child Adolesc Psychiatry*. 2019; 58(4):443–52
 34. Birmaher B, Brent D, The Work Group on Quality Issues. Practice parameters for the assessment and treatment of children and adolescents with depressive disorders. *J Am Acad Child Adolesc Psychiatry*. 1998; 37(10):635–835
 35. Young S, Gudjonsson G, Chitsabesan P, *et al*. Identification and treatment of offenders with attention-deficit/hyperactivity disorder in the prison population: A practical approach based upon expert consensus. *BMC Psychiatry*. 2018; 18(1):281
 36. Barrickman L. Disruptive behavioral disorders. *Pediatr Clin North Am*. 2003; 50(5):1005–17
 37. Steiner H. Practice parameters for the assessment and treatment of children and adolescents with conduct disorder. *J Am Acad Child Adolesc Psychiatry*. 1997; 36(10 Suppl):122S–39S