

Identification of Trauma Exposure and PTSD in Adolescent Psychiatric Inpatients: An Exploratory Study

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Trauma exposure and posttraumatic stress disorder (PTSD), though prevalent among adolescent psychiatric inpatients, are underidentified in standard clinical practice. In a retrospective chart review of 140 adolescents admitted to a psychiatric inpatient unit, we examined associations between probable PTSD identified through the Child PTSD Symptom Scale and adolescents' service use and clinical characteristics. Results suggest a large discrepancy between rates of probable PTSD identified through standardized assessment and during the emergency room psychiatric evaluation (28.6% vs. 2.2%). Adolescents with probable PTSD had greater clinical severity and service utilization, an increased likelihood of being diagnosed with bipolar disorder (27.5% vs. 9.2%) and being prescribed antipsychotic medications (47.5% vs. 27.6%), and were prescribed more psychotropic medications. Upon discharge, those with probable PTSD were more than those without to be assigned a diagnosis of PTSD (45% vs. 7.1%), a comorbid diagnosis of major depressive disorder (30% vs. 14.3%), to be prescribed an antidepressant medication (52.5% vs. 33.7%), and to be prescribed more medications. The underidentification of trauma exposure and PTSD has important implications for the care of adolescents given that accurate diagnosis is a prerequisite for providing effective care. Improved methods for identifying trauma-related problems in standard clinical practice are needed.

Posttraumatic stress disorder (PTSD) is prevalent in youth utilizing inpatient and outpatient mental health services (Allwood, Dyl, Hunt, & Spirito, 2008; Mueser & Taub, 2008), but PTSD may be underidentified in standard clinical practice. In fact, there are great disparities between rates of PTSD identified through structured research assessments (43–66%) and rates documented in patient charts (2–6%; Craine, Henson, Colliver, & MacLean, 1988; Miele & O'Brien, 2010; Mueser, Rosenberg, Goodman, & Trumbetta, 2002). In adolescent outpatients with severe emotional disorders, Mueser and Taub (2008) found that only 26% of youth meeting *Diagnostic and Statistical Manual of Mental Disorders* (4 ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) criteria for PTSD, based on structured clinical interviews, had a chart diagnosis of PTSD.

Youth diagnosed with PTSD present with high levels of clinical severity and complexity. For example, youth diagnosed with PTSD are more likely to have (a) higher levels of anxiety

and depression symptoms; (b) high degrees of comorbidity with other mental health disorders; (c) engage in high-risk (e.g., running away), self-harming, or delinquent behaviors; and (d) evidence poorer functioning relative to youth without PTSD (Ackerman, Newton, McPherson, Jones, & Dykman, 1998; Copeland, Keeler, Angold, & Costello, 2007; Giaconia, Reinherz, Silverman, Pakiz, Frost, & Cohen, 1995; Lipschitz, Winegar, Hartnick, Foote, & Southwick, 1999; Mueser & Taub, 2008). Similarly, adolescents with PTSD in psychiatric inpatient settings have a greater number of co-occurring disorders, more suicidal ideation, more prior psychiatric hospitalizations, and longer hospitalizations (Allwood et al., 2008; Lipschitz et al., 1999).

Despite the prevalence and clinical importance of identifying trauma exposure and PTSD in mental health settings, currently there are few empirical data that shed light on the treatment implications of underrecognition of these issues. Mueser and Taub (2008) found that youth meeting criteria for PTSD were more likely to have a recorded diagnosis of depression (47% vs. 16%) and were more likely to be on multiple psychotropic medications (31% vs. 11%) when compared to youth without PTSD. Given the high rates of comorbidity between abuse history/PTSD and depression, recent evidence supports the need to understand that a trauma history is present to select the most appropriate treatment for depression (Asarnow et al., 2009; Lewis et al., 2010; Shamsedden et al., 2011). Also, accurately

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identifying trauma and PTSD when present is a necessary step for providing the most appropriate and effective treatments for PTSD, especially because a considerable evidence base supports the use of cognitive-behavioral therapy (Cohen et al., 2010; Silverman et al., 2008). Furthermore, if trauma-related clinical problems are not identified and addressed in adolescence, changing cognitive, emotional, and behavioral patterns becomes increasingly more difficult in later development (Ford, 2009).

The current study examined rates of trauma exposure and probable PTSD in a sample of adolescents admitted to a psychiatric inpatient unit. Utilizing structured assessments, we first compared youth with probable PTSD to those without on demographic characteristics (age, gender, race/ethnicity), service use (level of care, past hospitalizations, past outpatient care, and length of current hospitalization), and clinical severity (depressive symptoms, suicidal ideation, prior suicidal behavior). Based on previous research, we anticipated that trauma exposure and probable PTSD would be highly prevalent in this sample and that probable PTSD would be associated with greater service use and severity of clinical presentation. Second, we examined associations between a probable diagnosis of PTSD, the intake diagnoses given upon admission, and the medication regimen youth were prescribed prior to admission. Third, we examined associations between a probable diagnosis of PTSD and a patient's discharge diagnoses and medication regimen. Last, we examined the concordance between a diagnosis of probable PTSD based on a standardized assessment and mention of a diagnosis of PTSD prior to admission anywhere in the medical record, during the emergency room admission process, and at discharge. Consistent with prior research (e.g., Mueser & Taub, 2008), we predicted poor concordance between rates of probable PTSD identified through standardized assessment and rates identified in prior treatment or during the admission process. Given that treating clinicians in the inpatient unit, however, had access to the assessment results, we expected improved concordance between rates of probable PTSD and discharge diagnoses of PTSD.

Method

Participants and Procedure

Medical records for 140 adolescents ranging in age from 12 to 18 years ($M = 15.11$, $SD = 1.6$) admitted consecutively to a psychiatric inpatient unit at a major public hospital in New York City between September 2008 and November 2009 were reviewed. Approximately half of the participants (50.7%) were male and the racial/ethnic breakdown was 37.3% African American, 35.6% Hispanic, 16.1% non-Hispanic White, 8.5% Asian American, and 2.1% other. The sample was of relatively low socioeconomic status, with 89% of youth qualifying for public health insurance. Patients with mental retardation, autism, or those who were actively psychotic were excluded from this sample.

Patients admitted to the psychiatric inpatient unit initially presented to the emergency department, where they received a psychiatric evaluation conducted by a child psychiatry resident in consultation with an attending child and adolescent psychiatrist. As part of standard clinical practice, all patients admitted to the adolescent psychiatric inpatient unit then completed a battery of measures assessing trauma exposure, PTSD, and depressive symptoms within the first week of their hospitalization. Psychology and psychiatry trainees administered the battery of assessment measures, with all questions being read aloud to patients. Results of this assessment were subsequently available to the entire clinical team working with a particular patient.

For the current study, trained research assistants reviewed medical records of patients and abstracted the relevant clinical information described below. The institutional review boards of the hospital and medical school approved the use of this archival clinical data for research purposes. As data were initially collected as part of standard clinical practice, approval included a waiver of informed consent.

Measures

Service use characteristics. The medical record was reviewed to assess past psychiatric hospitalizations (yes/no), number of prior psychiatric hospitalizations, and whether the adolescent had been in outpatient treatment. Given an extreme range of prior hospitalizations (ranging from 0 to 14) and the fact that 93.5% of youth had five or fewer hospitalizations, the nine patients with more than five hospitalizations were coded as having five hospitalizations. Where previous mental health treatment was documented anywhere in the medical record, we also coded whether a diagnosis of PTSD was given to the patient by a previous provider (based on any available information in the medical record). Length of the current hospital stay (in days) was also obtained. Length of stay also included extreme values (ranging from 6 to 222 days). Over 95% of youth had a stay of 81 days or less, so values for the nine more extreme cases were recoded to 81.

Trauma history. The NYU Child and Adolescent Stressors Checklist (Cloitre, Morin, & Silva, 2002; Mullett-Hume, Anshel, Guevara, & Cloitre, 2008) is a 66-item checklist assessing various potentially traumatic events that was included in the chart. Youth reported whether they had experienced each event in the past (yes/no). For the current study, we focused specifically on the 29 items assessing exposure to events that satisfy PTSD Criterion A1 as per the *DSM-IV-TR* (experiencing, witnessing, or being confronted with events that involve actual or threatened death or serious injury or a threat to physical integrity). Items assessing exposure to stressors that do not meet Criterion A1 (e.g., placement in foster care, parental divorce, etc.) were not included. Items were grouped to form the following dichotomous (yes/no) trauma exposure variables: accidents, disasters, community violence victimization, witnessed community violence, physical abuse, exposure to domestic violence, and sexual abuse. A sum score representing

the total number of different types of traumatic events reported was also computed (possible range from 0 to 7). The obtained Cronbach's α in the current sample was .75.

Probable PTSD. The results of the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001) in the chart were used to obtain a probable diagnosis of PTSD. The CPSS contains 17 items corresponding to the 17 symptoms of PTSD outlined in the *DSM-IV-TR* and is designed for use with children ages 8–18 years. Items were rated on a 4-point Likert scale ranging from 0 = *Not at all* to 3 = *Almost always*. The CPSS has demonstrated good test-retest reliability as well as convergent and discriminant validity (Foa et al., 2001). In the current sample, coefficient $\alpha = .90$. The CPSS can be scored to yield a total PTSD severity score or individual items can be scored dichotomously to allow for scoring based on *DSM-IV* criteria (Foa et al., 2001). To have more conservative criteria for the presence or absence of a symptom, we only considered a symptom present if youth indicated that a symptom occurred *half of the time* (2) or *almost always* (3). A probable diagnosis of PTSD was considered present if, as per *DSM-IV-TR* criteria, youth endorsed at least one reexperiencing, three avoidance, and two arousal symptoms.

Depressive symptoms. Depression severity was assessed using the total score from the Children's Depression Inventory (CDI; Kovacs, 1992) included in the patient chart. The CDI is a 27-item self-report measure assessing cognitive, affective, and behavioral symptoms of depression in youth. Each item on the CDI consists of three statements (scored as 0, 1, 2) and respondents were asked to indicate which item best describes them in the past 2 weeks. The CDI is a widely used measure with good internal consistency, test-retest reliability, and construct validity (Cole, Hoffman, Tram, & Maxwell, 2000; Kovacs, 1992). In the current sample, $CDI \alpha = .87$.

Suicidality. Information about any past suicidal behavior or attempts (yes/no) was obtained from patient's intake records. Current suicidal ideation was considered present if the patient indicated on the CDI (Kovacs, 1992) that they "think about" or "want to" kill themselves.

Diagnosis on admission and discharge. Diagnoses on admission documented in the medical record were provided by child psychiatry residents in consultation with attending child psychiatrists in the emergency department. Diagnoses on discharge documented in the medical record were provided by attending child psychiatrists on the adolescent unit, in consultation with the clinical team. In most cases, we used the specific diagnosis or diagnoses recorded in the chart. Because some specific diagnoses were assigned infrequently, however, for the purpose of the current study we grouped some diagnoses as follows: anxiety disorders (including generalized anxiety disorder, anxiety disorder not otherwise specified [NOS], obsessive-compulsive disorder, and panic disorder, but excluding PTSD);

psychotic disorders (including schizophrenia, schizoaffective disorder, psychosis NOS, and delusional disorder); pervasive developmental disorders (including only pervasive developmental disorder NOS and Asperger syndrome, but excluding autism); and impulse control disorders (including impulse control disorder NOS and intermittent explosive disorder). In addition to coding the individual disorders given to patients, we also tallied the total number of diagnoses given on admission and discharge. Given that 98.6% of youth had five or fewer diagnoses on admission, patients with more extreme scores on this variable were recoded to have a maximum of five admission diagnoses. Diagnoses at discharge were not recoded, given that five diagnoses was the maximum number assigned.

Medication regimen on admission and discharge. The medication regimen was coded by reviewing prescriptions for psychotropic medication subjects had prior to admission and at discharge based on all available data in the medical records. The presence or absence of medication from a given class (antidepressant, stimulant, antipsychotic, mood stabilizer, anxiolytic, and other) was coded. Additionally, we tallied the total number of classes of psychotropic medications youth were prescribed prior to admission and at discharge.

Data Analysis

Variables were first examined for skewness and kurtosis and variables with extreme scores (length of stay, number of diagnoses at admission, and number of hospitalizations) were recoded as described above. In the current study, cases with missing data were omitted from analyses through listwise deletion. Minimum covariance coverage was 96%. To address the study aims, we conducted a series of chi-square analyses to examine differences between those coded as having a probable diagnosis of PTSD and those without on categorical variables. In cases where cell sample sizes were less than five, level of significance was computed using Fisher's exact test. Group differences on continuous variables were assessed using *t* tests. In instances when the results of Levene's test for homogeneity of variances were significant, the *t* statistic was computed assuming heterogeneous variances across groups. Cohen's κ was used to assess concordance between a probable diagnosis of PTSD based on the CPSS and a diagnosis of PTSD prior to admission, at admission, and at discharge. All tests were two-tailed, with the significance level set at $p < .05$.

Results

Table 1 shows the overall values of the study variables as well as the differences between those with and without probable PTSD based on the CPSS. Nearly all (96.4%) adolescents reported lifetime exposure to at least one of the seven types of traumatic events assessed. Sexual abuse (24.3%) was endorsed

Table 1
Demographic, Service Use, and Mental Health Characteristics Overall and by Probable PTSD Status

| Variable | Overall <i>N</i> = 140 | | No PTSD <i>n</i> = 100 | | Probable PTSD <i>n</i> = 40 | | Analysis <i>t</i> or χ^2 |
|--|------------------------|----------------|------------------------|----------------|-----------------------------|----------------|----------------------------------|
| | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | |
| Age | 15.11 | 1.60 | 15.16 | 1.59 | 14.98 | 1.63 | 0.63 |
| Sex | | | | | | | |
| Boy | 70 | 50.0 | 55 | 55.0 | 15 | 37.5 | |
| Girl | 70 | 50.0 | 45 | 45.0 | 25 | 62.5 | 3.50 |
| Race/ethnicity | | | | | | | |
| Non-Hispanic White | 19 | 16.1 | 14 | 17.3 | 5 | 13.5 | |
| African American | 44 | 37.3 | 26 | 32.1 | 18 | 48.6 | |
| Hispanic | 42 | 35.6 | 29 | 35.8 | 13 | 35.1 | |
| Asian American | 10 | 8.5 | 9 | 11.1 | 1 | 2.7 | |
| Other | 3 | 2.1 | 3 | 3.7 | – | – | 5.58 |
| Service use | | | | | | | |
| Past psych hosp ^a | 69 | 50.4 | 45 | 46.4 | 24 | 60.0 | 2.10 |
| No. past psych hosp ^a | 1.21 | 1.58 | 0.98 | 1.39 | 1.78 | 1.89 | –2.41 ^{*a} |
| Past outpatient treatment ^a | 76 | 55.5 | 56 | 57.7 | 20 | 50.0 | 0.69 ^a |
| Past diagnosis PTSD ^b | 10 | 7.2 | 4 | 4.1 | 6 | 15.0 | 5.04 ^{*b} |
| Days hospitalized ^b | 23.57 | 18.64 | 19.47 | 12.91 | 33.63 | 25.70 | –3.32 ^{**} |
| Suicidality | | | | | | | |
| Prior behavior ^a | 33 | 24.1 | 19 | 19.6 | 14 | 35.0 | 3.68 ^a |
| Current ideation ^c | 46 | 34.3 | 24 | 25.3 | 22 | 56.4 | 11.90 ^{**} |
| Trauma history | | | | | | | |
| Accident | 72 | 51.4 | 47 | 47.0 | 25 | 62.5 | 2.75 |
| Disaster | 42 | 30.0 | 28 | 28.0 | 14 | 35.0 | 0.67 |
| Victim comm. violence | 98 | 70.0 | 71 | 71.0 | 27 | 67.5 | 0.17 |
| Witness comm. violence | 98 | 70.0 | 65 | 65.0 | 33 | 82.5 | 4.17 [*] |
| Physical abuse | 74 | 52.9 | 46 | 46.0 | 28 | 70.0 | 6.60 ^{**} |
| Domestic violence | 39 | 27.9 | 20 | 20.0 | 19 | 47.5 | 10.75 ^{***} |
| Sexual abuse | 34 | 24.3 | 17 | 17.0 | 17 | 42.5 | 10.10 ^{***} |
| Total no. traumas | 3.26 | 1.69 | 2.94 | 1.68 | 4.08 | 1.44 | –3.75 ^{***} |
| Depressive symptoms ^c | 11.84 | 8.15 | 8.68 | 5.72 | 19.51 | 8.13 | –7.59 ^{***} |

Note. PTSD = posttraumatic stress disorder; psych hosp = psychiatric hospitalization; comm violence = community violence.

^a*n* = 137 due to missing data. ^b*n* = 138 due to missing data. ^c*n* = 134 due to missing data.

p* < .05. *p* < .01. ****p* < .001.

least often, whereas witnessed community violence (70%) and personal victimization related to community violence (70%) were endorsed most often. On average, participants reported being exposed to multiple traumatic events ($M = 3.26$, $SD = 1.69$) in their lifetime. Of the total sample, 28.6% met criteria for a probable diagnosis of PTSD on the CPSS. As expected, cumulative trauma exposure, witnessed community violence, physical abuse, exposure to domestic violence, and sexual abuse were significantly associated with probable PTSD.

Demographics, Service Use, and Clinical Severity

A diagnosis of probable PTSD was not significantly associated with youth age, race/ethnicity, or sex. Youth with probable PTSD reported significantly more past psychiatric hospitaliza-

tions and were hospitalized for more days during their current hospitalization. Relative to those without probable PTSD, youth with probable PTSD endorsed current suicidal ideation more often and reported greater depressive symptom severity (see Table 1).

Admission Diagnosis and Medication Regimen

Table 2 presents information about emergency room diagnoses and medication regimen prior to admission for the overall sample and for those with and without probable PTSD. Of the 16 diagnoses coded, probable PTSD was only significantly associated with a diagnosis of bipolar disorder given in the emergency room. A significantly higher proportion of youth with probable PTSD were given a diagnosis of

Table 2
 Diagnosis and Medication Regimen at Admission Overall and by PTSD Status

| Variable | Overall <i>N</i> = 140 | | No PTSD <i>n</i> = 100 | | Probable PTSD <i>n</i> = 40 | | Analysis <i>t</i> or χ^2 |
|-------------------------|------------------------|----------------|------------------------|----------------|-----------------------------|----------------|----------------------------------|
| | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | |
| Admission diagnosis | | | | | | | |
| PTSD | 3 | 2.2 | 2 | 2.0 | 1 | 2.5 | 0.03 |
| Anxiety | 8 | 5.8 | 7 | 7.1 | 1 | 2.5 | 1.12 |
| Mood disorders | | | | | | | |
| Major depressive d/o | 17 | 12.3 | 15 | 15.3 | 2 | 5.0 | 2.79 |
| Dysthymic d/o | 6 | 4.3 | 3 | 3.1 | 3 | 7.5 | 1.35 |
| Depressive d/o, NOS | 14 | 10.1 | 8 | 8.2 | 6 | 15.0 | 1.46 |
| Bipolar d/o | 20 | 14.5 | 9 | 9.2 | 11 | 27.5 | 7.69** |
| Mood d/o, NOS | 38 | 27.5 | 27 | 27.6 | 11 | 27.5 | <.01 |
| Disruptive behavior | | | | | | | |
| Conduct d/o | 13 | 9.4 | 8 | 8.2 | 5 | 12.5 | 0.62 |
| Opp. Defiant d/o | 20 | 14.5 | 15 | 15.3 | 5 | 12.5 | 0.18 |
| Disrupt beh. d/o, NOS | 7 | 5.1 | 5 | 5.1 | 2 | 5.0 | <.01 |
| ADHD | 31 | 22.5 | 21 | 21.4 | 10 | 25.0 | 0.21 |
| Impulse control d/o | 6 | 4.3 | 6 | 6.1 | — | — | 2.56 |
| Adjustment d/o | 13 | 9.4 | 9 | 9.2 | 4 | 10.0 | 0.02 |
| Substance use d/o | 9 | 6.5 | 7 | 7.1 | 2 | 5.0 | 0.21 |
| Pervasive develop. d/o | 6 | 4.3 | 6 | 6.1 | — | — | 2.56 |
| Psychotic d/o | 19 | 13.8 | 12 | 12.2 | 7 | 17.5 | 0.66 |
| No. admission diagnoses | 1.64 | 1.11 | 1.61 | 1.06 | 1.73 | 1.22 | −0.54 |
| Medication at admission | | | | | | | |
| Antidepressant | 22 | 15.9 | 12 | 12.2 | 10 | 25.0 | 3.45 |
| Stimulant | 16 | 11.6 | 11 | 11.2 | 5 | 12.5 | 0.05 |
| Antipsychotic | 46 | 33.3 | 26 | 27.6 | 19 | 47.5 | 5.09* |
| Mood stabilizer | 11 | 8.0 | 7 | 7.1 | 4 | 10.0 | 0.32 |
| Anxiolytic | — | — | — | — | — | — | — |
| Other | 6 | 4.3 | 4 | 4.1 | 2 | 5.0 | 0.06 |
| No. medication classes | 0.73 | 0.99 | 0.62 | 0.96 | 1.00 | 1.04 | −2.05* |

Note. *N* = 138 due to incomplete admission data. PTSD = posttraumatic stress disorder; NOS = not otherwise specified; ADHD = attention deficit and hyperactivity disorder; d/o = disorder; opp. defiant = oppositional defiant; disrupt beh. = disruptive behavior.

p* < .05. *p* < .01.

bipolar disorder (27.5%) relative to youth without probable PTSD (9.2%). A probable diagnosis of PTSD was also uniquely associated with being on an antipsychotic medication immediately prior to their hospitalization (47.5% vs. 27.6%). As seen in Table 2, the medication regimen of adolescents with probable PTSD consisted of more medication classes (*M* = 1.00, *SD* = 1.04) relative to youth without probable PTSD (*M* = 0.62, *SD* = 0.96).

Discharge Diagnosis and Medication Regimen

Although the current study is descriptive in nature, we examined discharge diagnoses to explore whether systematically assessing for trauma exposure and PTSD is associated with increased identification of PTSD and changes in medication regimen at discharge. As seen in Table 3, youth with probable

PTSD were more likely to be given a chart diagnosis of PTSD (45% vs. 7.1%) at discharge. Furthermore, probable PTSD was also significantly associated with a diagnosis of major depressive disorder at discharge (30% vs. 14.3%). Youth identified as having probable PTSD were also significantly more likely to be prescribed an antidepressant medication (52.5% vs. 33.7%) upon discharge and on average continued to be prescribed more different types of medications (*M* = 1.58, *SD* = 0.98 vs. *M* = 1.20, *SD* = 0.94).

PTSD Diagnostic Concordance

To examine the degree of association between a current diagnosis of probable PTSD based on standardized assessment and PTSD diagnoses in prior treatment (based on information available in the entire medical record), in the emergency

Table 3
Diagnosis and Medication Regimen at Discharge Overall and by PTSD Status

| Variable | Overall <i>N</i> = 140 | | No PTSD <i>n</i> = 100 | | Probable PTSD <i>n</i> = 40 | | Analysis <i>t</i> or χ^2 |
|-------------------------|------------------------|----------------|------------------------|----------------|-----------------------------|----------------|----------------------------------|
| | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | <i>n</i> or <i>M</i> | % or <i>SD</i> | |
| Discharge diagnosis | | | | | | | |
| PTSD | 25 | 18.1 | 7 | 7.1 | 18 | 45.0 | 27.44*** |
| Anxiety | 8 | 5.8 | 6 | 6.1 | 2 | 5.0 | 0.07 |
| Mood disorders | | | | | | | |
| Major depressive d/o | 26 | 18.8 | 14 | 14.3 | 12 | 30.0 | 4.59* |
| Dysthymic d/o | 7 | 5.1 | 3 | 3.1 | 4 | 10.0 | 2.84 |
| Depressive d/o, NOS | 19 | 13.8 | 13 | 13.3 | 6 | 15.0 | 0.07 |
| Bipolar d/o | 11 | 8.0 | 8 | 8.2 | 3 | 7.5 | 0.02 |
| Mood d/o, NOS | 31 | 22.5 | 23 | 23.5 | 8 | 20.0 | 0.20 |
| Disruptive behavior | | | | | | | |
| Conduct d/o | 9 | 6.5 | 8 | 8.2 | 1 | 2.5 | 1.49 |
| Opp. defiant d/o | 20 | 14.5 | 14 | 14.3 | 6 | 15.0 | 0.01 |
| Disrupt beh. d/o, NOS | 2 | 1.4 | 1 | 1.0 | 1 | 2.5 | 0.44 |
| ADHD | 26 | 18.8 | 18 | 18.4 | 8 | 20.0 | 0.05 |
| Impulse control d/o | 6 | 4.3 | 6 | 6.1 | — | — | 2.56 |
| Adjustment d/o | 14 | 10.1 | 12 | 12.2 | 2 | 5.0 | 1.64 |
| Substance use d/o | 16 | 11.6 | 11 | 11.2 | 5 | 12.5 | 0.05 |
| Pervasive dev. d/o | 3 | 2.2 | 3 | 3.1 | — | — | 1.25 |
| Psychotic spectrum d/o | 8 | 5.8 | 6 | 6.1 | 2 | 5.0 | 0.07 |
| No. admission diagnoses | 1.67 | 0.88 | 1.56 | 1.95 | 1.95 | 1.01 | -2.39* |
| Medication at discharge | | | | | | | |
| Antidepressant | 54 | 39.1 | 33 | 33.7 | 21 | 52.5 | 4.23* |
| Stimulant | 33 | 23.9 | 25 | 25.5 | 8 | 20.0 | 0.47 |
| Antipsychotic | 53 | 38.4 | 34 | 34.7 | 19 | 47.5 | 1.97 |
| Mood stabilizer | 14 | 10.1 | 9 | 9.2 | 5 | 12.5 | 0.34 |
| Anxiolytic | 10 | 7.2 | 7 | 7.1 | 3 | 7.5 | 0.01 |
| Other | 17 | 12.3 | 10 | 10.2 | 7 | 17.5 | 1.40 |
| No. medication classes | 1.31 | 0.97 | 1.20 | 0.94 | 1.58 | 0.98 | -2.07* |

Note. *N* = 138 due to incomplete discharge data. PTSD = posttraumatic stress disorder; NOS = not otherwise specified; ADHD = attention deficit and hyperactivity disorder; d/o = disorder, opp. defiant = oppositional defiant; disrupt beh. = disruptive behavior.

p* < .05. *p* < .01. ****p* < .001.

room psychiatric evaluation, and at discharge we calculated κ coefficients. Results revealed that concordance was poor when comparing a current diagnosis of probable PTSD to a diagnosis of PTSD in previous treatment ($\kappa = .14$) or to a diagnosis of PTSD in the emergency room ($\kappa = .01$). Concordance between a diagnosis of probable PTSD based on standardized assessment and a discharge diagnosis of PTSD fell in the fair to moderate range ($\kappa = .43$).

Discussion

With over 96% of youth reporting exposure to at least one potentially traumatic event and youth commonly reporting exposure to multiple types of events, our results underscore the extremely high prevalence of trauma exposure in adolescent psychiatric inpatients. Despite high rates of identified probable PTSD (28.6%) based on standardized assessment, the current

study is consistent with previous work suggesting that trauma exposure and PTSD are underidentified in psychiatric inpatient settings (e.g., Allwood et al., 2008, Lipschitz et al., 1999). Only one patient out of 40 (2.5%) who met criteria for probable PTSD received an admission diagnosis of PTSD; only 6 patients out of 40 (15%) with probable PTSD had a historical diagnoses of PTSD noted in their admission documentation.

As predicted, adolescents with trauma exposure and PTSD present with complex clinical pictures (e.g., current suicidal ideation) and high service utilization (e.g., longer hospitalizations) relative to youths without probable PTSD. Extending previous work, our findings regarding the lack of recognition of trauma-related symptoms during the admission process suggests that the clinical complexity in this population may complicate appropriate diagnosis and treatment planning. The greater clinical complexity appears to consistently relate

to greater medication use and increased likelihood of the prescription of antipsychotic medications prior to admission as well as increased likelihood of admission diagnoses of bipolar disorder.

PTSD and acute stress disorder are the only diagnoses where knowledge about exposure to a specific event (a trauma) is required to make the diagnosis. Without knowledge about exposure to a traumatic event, it is virtually impossible to evaluate reexperiencing symptoms (e.g., flashbacks, psychological distress associated with the traumatic experience). Furthermore, evaluation of possible symptoms of avoidance of thoughts and reminders of the traumatic event also require that exposure to the traumatic event is known. Thus, if the youth or their family does not spontaneously disclose exposure to a traumatic event or if the evaluating clinician does not systematically assess exposure to trauma, it will be impossible to obtain information about these central aspects of PTSD. Notably, assessment of symptoms of hyperarousal (sleep problems, irritability, difficulty concentrating, hypervigilance, and an increased startle response) does not require knowledge about exposure to a traumatic event.

When clinicians do not obtain a trauma history and assess for trauma-related problems, the presence of high-risk behaviors, affective volatility, and symptoms of hyperarousal of adolescents with trauma-related symptoms may lead to diagnostic confusion (including inaccurate diagnosis of bipolar disorder) and increased likelihood of the prescription of second generation antipsychotics for mood reactivity and interpersonal aggression. Although second generation antipsychotic medications may have a role in the treatment of child and adolescent PTSD (Strawn, Brooks, DelBello, Geraciotti, & Putnam, 2010), there is no evidence that they are efficacious as a single modality treatment. As trauma-focused psychotherapies have the clearest evidence base in child and adolescent PTSD (Silverman et al., 2008), accurate diagnosis of PTSD is an essential foundation for effective treatment.

Previous work conducted in community mental health clinics found poor agreement between results from evidence-based trauma symptom measures available to clinicians and the diagnoses clinicians assign at intake (Osterberg, Jensen-Doss, Cusack, & de Arellano, 2009). In the current study, we found that youth identified as having probable PTSD through standardized assessment were more likely to be assigned a diagnosis of PTSD and prescribed an antidepressant on discharge. As an independent diagnosis of PTSD was not available to provide a gold standard for the presence or absence of PTSD, it is not possible to determine the accuracy of these discharge diagnoses and future work will be needed to examine this more closely. A PTSD rate of 18.1% on discharge, however, is more consistent with rates of PTSD identified in previous studies of adolescent inpatients (Allwood et al., 2008, Lipschitz et al., 1999). Additionally, it is notable that use of a brief assessment instrument provided similar rates of PTSD diagnosis to those of prior studies using structured clinician administered assessments—this has important implications for use in other settings where

administration of more lengthy assessments would not be practical.

Reflecting our efforts to target trauma-related symptoms in this population through systematic assessment, patients with probable PTSD were more likely to receive PTSD and major depressive disorder diagnoses on discharge. Although the current study did not employ an experimental design and was not designed to evaluate the implementation of standardized assessment, our descriptive results are consistent with the assertion that routine use of evidence-based assessment instruments improves the identification and treatment of trauma-related problems. Given the high reliance on safety net providers such as emergency rooms and psychiatric hospitals by underserved and racial/ethnic minority youth (U. S. Surgeon General, 2001), examining the quality of mental health care in these settings is crucial. The current findings highlight the importance of developing innovations and adaptations in the acute care service delivery model to improve the identification of trauma exposure and trauma-related symptomatology, when present. Improved diagnostic accuracy may be one important way of ensuring that the needs of the most vulnerable youth, who encounter the greatest number of barriers to accessing care, receive appropriate and effective services when they do come into contact with the public mental health system.

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