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RISK FACTORS FOR PSYCHIATRIC HOSPITALIZATION AMONG ADOLESCENTS

Child Welfare in the U.S. and Russia
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HOSPITALIZATION RATES

Children ages 5-12 suffered the greatest increase of hospitalization rates

- **155** per 100,000 children in 1996
- **283** per 100,000 in 2007.

Such shifts reflect an *increase in clinical need* rather than overuse of hospital resources

- these hospitalization trends coincided with the ***increase in bipolar diagnosis,*** particularly among youth (Blader, 2011).

Hospitalization continues to be a considerable component of the mental health service provision

- since children and adolescents with severe psychiatric disorders are in need of highly intensive and structured treatment settings (Burns et al., 1999; McCurdy & McIntyre, 2004).

STUDIES ON RISK FACTORS

Gaps in the knowledge

- Most studies in the existing literature have focused on readmission/rehospitalization rates and factors leading to it.
  - Most readmission studies have used adult sample (Romansky et al., 2003).

RISK FACTORS: PSYCHIATRIC DIAGNOSIS

Among those that predicted rehospitalization based on psychiatric diagnosis using child and/or adolescent samples have produced ***inconclusive and conflicting findings***

One study examined data of 71 adolescents admitted into a psychiatric facility for over a two-year period

did not find a relationship between the young adults' DSM-IV axis I or axis II diagnosis and rehospitalization (Bobier & Warwick, 2005).

Another study analyzed clinical ratings on the Childhood Severity of Psychiatric Illness for 500 randomly selected children and adolescents who underwent psychiatric hospitalization

none of the diagnostic categories were significantly associated with the hospital readmission (Romansky et al., 2003).

RISK FACTORS: PSYCHIATRIC DIAGNOSIS

On the contrary, a few studies found that ***depression*** (Foster, 1999) or ***suicidal ideation*** (Arnold et al., 2003; Enns et al., 2003) predicted a higher readmission rate of children and adolescents

One study found that children diagnosed with major depression were at a higher risk for rehospitalization (Foster, 1999).

Examining the readmission data of formerly hospitalized adolescents longitudinally, Arnold et al. (2003) found that diagnoses of affective disorders and previous suicidal attempts significantly predicted adolescent rehospitalization.

RISK FACTORS: PSYCHIATRIC DIAGNOSIS

Other studies pointed to the predictive relationship between ***conduct disorder or oppositional disorder*** (Foster, 1999; Blader, 2004; Chung et al., 2008) and a higher readmission rate of children and adolescents

These studies found that those children and adolescents who had a higher level of conduct disorder had a higher probability to be rehospitalized.

However, this finding contradicted to another study results stating that neither oppositional disorder nor conduct disorder significantly predicted readmission (Arnold et al., 2003).

RISK FACTORS: PERSONAL CHARACTERISTICS

- Studies examined personal characteristics
- However the results on the association between ***age, race/ethnicity*** and rehospitalization have been inconsistent

Rice et al. (2002) compared younger, middle and older children who were admitted to a psychiatric inpatient unit and found that ***younger*** children tended to be hospitalized for more serious emotional and behavioral problems.

Using a large sample of state hospital records of children and adolescents, Pavkov et al. (1997) found that patients were more likely to be readmitted if they were ***African American, younger,*** and ***had a diagnosis of psychotic disorder.***

In contrast, Foster (1999) discovered that being ***Caucasian, older*** and ***female*** predicted readmission.

RISK FACTORS: SYMPTOM SEVERITY & LENGTH OF STAY

Among those that predicted rehospitalization based on symptom severity and length of stay, the findings were ***inconclusive and conflicting***

greater symptom severity has been associated with poorer outcome, including rehospitalization (e.g., Fontanella, 2008)

however, Mayes et al. (2001) determined that greater symptom severity was associated with a higher rate of change.

some studies have found shorter lengths of stays to be associated with an increased risk for poor outcome, such as readmission (Case et al., 2007; Wickizer, Lessler & Boyd-Wickizer, 1999)

others have reported a significant relationship between longer stays and poor outcome (James et al., 2010).

CHILD WELFARE & MENTAL HEALTH

Children in the child welfare system constitute a particularly high-risk population in terms of mental health needs (Collins & Collins, 1994; Leon et al., 1999).

Child maltreatment has been linked to a number of behavioral and emotional problems (i.e., self-esteem, aggression, depression, cognitive impairment, communication difficulties, conduct disorders and delinquency).

- Children & adolescents in foster care experience significant hardship prior to- and once involved in the child welfare system (Burns et al., 2004; Shor, 1989).
- Stress of removal from home leave children at greater risk for the development of psychiatric problems (Landsverk & Garland, 1999).

Higher rates of mental health and developmental problems

- **35 to 85%** (Moffatt et al., 1985; McIntyre & Keesler, 1986; Simms, 1989) as compared to **12 to 15%** of youth in the general population (Institute of Medicine, 1989).

FOSTER CARE & MENTAL HEALTH

Hospitalization rates for foster youth

- **94**% of foster youth had used a mental health service, and **42**% had been admitted for inpatient care by the time they were 17 years old (McMillen et al., 2004).
- **10** times higher service use rates than for community samples (Laurel et al., 2000)
- Children in FC account for **41**% of all users of MH svcs (Halfon et al., 1992)
  - 53% of all psychologist visits
  - 47% of psychiatry visits
  - 43% of Medi-Cal inpatient hospitalization in public hospitals
  - 27% of inpatient psychiatric hospitals.
  - Significant age gradient for most services, with older children in FC demonstrating the highest utilization rates of all services.
- Once entering the mental health system, hospitalization rates of children in foster care utilizing mental health services are comparable to rates for children in the reference population (Halfon et al., 1992).

STUDY QUESTION I

Which behavioral disorders among youth are most closely associated with psychiatric hospitalization?

- In relation to youth with internally focused disorders such as depression or anxiety, we hypothesized that:
  - risk of inpatient stay would be elevated among **youth with disruptive behavior disorders** (so-called acting out disorders such as ADHD, conduct disorder, or oppositional defiant disorder);
  - risk of inpatient stay would be increased due to **alcohol or drug use disorder**, relative to absence of such disorder;
  - **eating disorder** would increase risk because of health complications.

STUDY QUESTION II

Does foster care increase or decrease the risk of psychiatric hospitalization?

- It may increase risk because
  - youth in foster care have more behavioral disturbance than youth outside of foster care, or
  - presence in foster care calls attention to behavioral disturbance that might otherwise go unnoticed in communities.
- Conversely, foster care may decrease risk of inpatient stay.
  - Youth who are already hooked into a service system (child welfare) may receive more outpatient mental healthcare, at least in relation to youth with behavioral disturbance who may remain unnoticed and untreated in communities.
  - The outpatient care could help prevent inpatient stay.

METHODS

Medicaid data from New York State (2007-2008)

- The dataset is maintained by the Centers for Medicare and Medicaid Services
- **N=14,834; ages 12-19;** all youth over age 11 who met certain inclusion criteria (e.g., fee-for-service only).

Measures

- **Psychiatric diagnoses** were assigned to youth based on the ICD-9-CM.
- Youth with disruptive behavior disorders (conduct, oppositional defiant, or attention deficit hyperactivity disorders), major depressive disorders, anxiety disorders, eating disorders, alcohol use disorders, or drug use disorders.

SAMPLE

N=14,834

- The youth (ages 12-19, all with behavioral disturbance) were:
  - **65% male**
  - **44% white**; 19% black; 2% Hispanic, 35% other
  - 57% had disruptive behavior disorders
  - 5% had major depressive disorder
  - 18% had anxiety disorder
  - 3.3% had alcohol use disorder
  - 22% had drug use disorder
  - 0.7% had eating disorder
  - 21% were in foster care for all of 2007-2008

ANALYSIS

Logistic regression

- **To predict psychiatric hospitalization (any stays in 2007-2008)**
- focusing only on youth with the most commonly occurring behavioral disturbances

Predictions from

- **Demographics**: age, sex, and race/ethnicity
- Presence vs. absence of each types of **behavioral disturbance**
- Presence vs. absence of **alcohol use or drug use disorders**
- **Foster care** involvement vs. no involvement among youth with behavioral disturbance.

RESULTS

Among the 14,834 Medicaid beneficiaries in our study population, **5.4%** (803) **were admitted** to psychiatric hospitals in the 2-year observation period (2007-2008)

SIGNIFICANT PREDICTORS OF INPATIENT STAY: DEMOGRAPHICS

Age

- Relative to 12-year olds, adolescents of ages 18 and 19 were 1.89 times as likely (CI=1.35-2.64, p<.001) and 2.48 times as likely (CI=1.77=3.48, p<.001), respectively, to be hospitalized.

Gender

- Relative to females, males were 1.67 times as likely (CI=1.44-1.94, p<.001) to be hospitalized.

Race/Ethnicity

- Relative to Whites, persons of ethnicities other than Black were 1.29 times as likely (CI=1.08-1.54, p<.01) to be hospitalized.

SIGNIFICANT PREDICTORS OF INPATIENT STAY: BEHAVIORAL & DRUG USE DISORDERS

Anxiety disorders

- Youth with anxiety disorders were 1.60 times as likely (CI=1.33-1.92, p<.001) as youth with other behavioral disorders to use inpatient care.

Eating disorders

- Youth with eating disorders were 3.21 times as likely (CI=1.83-5.61, p<001) as youth with other behavioral disorders to be admitted.

Drug use disorders

- Youth with drug use disorders were 2.80 times as likely (CI=2.34-3.36, p<.001) as youth with other behavioral disorders to be hospitalized

SIGNIFICANT PREDICTORS OF INPATIENT STAY: FOSTER CARE INVOLVEMENT

Foster care involvement

- In relation to youth outside of foster care, those in care were 41% less likely to be admitted (OR=.59, CI=.47-.72, p<.001).

DISCUSSION

- About **5%** of youth with behavioral disturbances were hospitalized in 2007-2008.

Risk of psychiatric hospitalization was elevated among youth with anxiety disorders, eating disorders, or drug use disorders.

- **Our hypothesis that risk would be elevated among youth with disruptive behavior disorders (attention deficit hyperactivity disorder [ADHD], conduct disorder, or oppositional defiant disorder) was <u>not</u> supported.**
  - Instead, anxiety disorders had greater impact.
  - More granular research is needed in order to compare panic disorder, for example, to other types of anxiety disorder

DISCUSSION

While our hypothesis relating to alcohol use disorders was unsupported, we did find that drug use disorders tripled the risk of hospital stay.

- Alcohol use disorder may be underdiagnosed (only 3.3% of youth with behavioral disturbance in our sample), while drug use disorders may both command more attention (22.3% in our sample) and raise more red flags for psychiatric hospitalization.

Similarly, **eating disorders called attention to need for inpatient stay**.

DISCUSSION

Foster care decreased risk of inpatient stay

- Perhaps youth in foster care get more outpatient treatment because they are already involved in service systems (e.g., child welfare; income or employment assistance for parents), and more attention is then paid to behavioral disturbances that might otherwise go unnoticed.

DISCUSSION

Males were more likely than females to be hospitalized

- **Perhaps because they can express disturbance externally** (so-called acting out disorders: Lahey et al., 2000) than females who more often internalize problem (Kann & Hanna, 2000).

DISCUSSION

Our finding on hospitalization rates, namely that about one in twenty youth with behavioral disturbance are hospitalized over a two-year period, suggests that **attention must be paid to adolescents who are at greatest risk.**

THANK YOU!

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