Helping policymakers better predict the prevalence of children's mental health conditions: An analysis using restricted and publicly available health and education data

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Background

- Many state and local policymakers need tools to better identify and prioritize students most at risk of mental health conditions and the negative consequences of unmet mental health needs.
- However, state and local educational agencies often lack data to inform resource allocations for preventing and addressing children's mental health conditions.
- We aim to identify the most informative and accessible information to aid decision makers in determining where school-aged children's mental health needs are greatest.
- Specifically, we address the following research question:

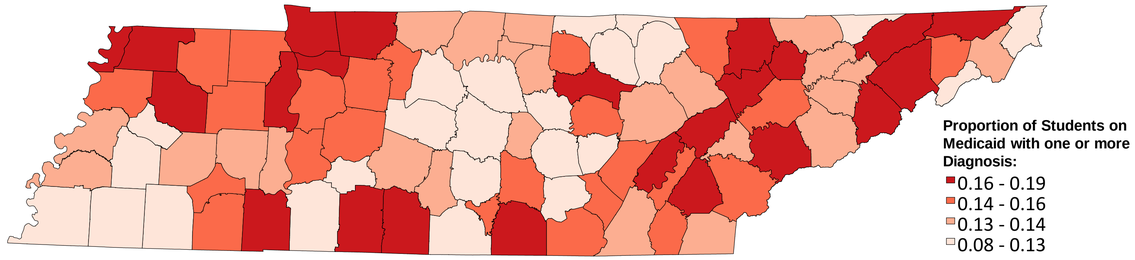
RQ: How do risk factors relate to the prevalence of a particular mental health condition over time?

Data and Sample

- Novel, longitudinal dataset of low-income, school-aged children who attended Tennessee (TN) public schools from 2010-11 to 2018-19.
- Data contain all public-school student records from the TN Department of Education and health insurance claims from TN's Medicaid program linked at the student level (about 70% of TN children are included in the linked dataset).
- Publicly available data come from a variety of sources. Most data are county-level data from the Annie E. Casey Foundation's KIDSCOUNT initiative.

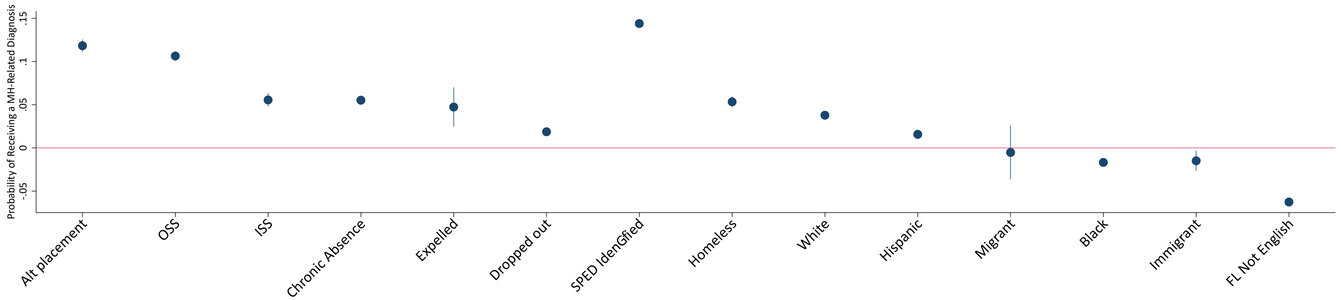
Mental Health Diagnosis Rates for TN Public School Students on Medicaid, 2019

Proportion of students with a diagnosis for one or more: ADHD, Anxiety, Depression, Bipolar and Suicidal Ideation



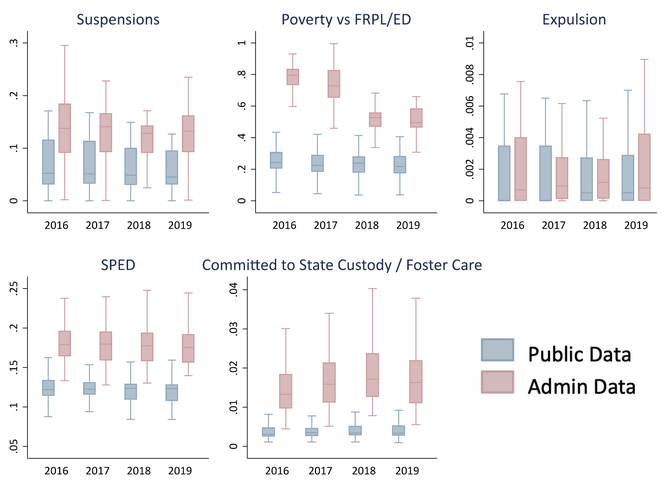
Educational Outcomes and Demographics are Differentially Associated with the Probability of Receiving a Mental Health Diagnosis

MH diagnosis for ADHD, Anxiety, Depression, Bipolar and Suicidal Ideation



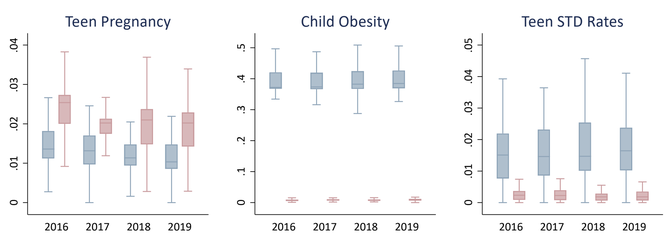
Proportion of Students with Various Education Outcomes are Similar in Administrative and Publicly Reported Data

Note that Administrative Data Proportions are for Medicaid Population Only



Proportion of Students with a Given Diagnosis in Medicaid Claims Data do Not Always Correspond Well with Public Data

Note that Administrative Data Proportions are for Medicaid Population Only



Examples of Other Publicly Reported Data:

Prenatal Care Receipt
Child Abuse and Neglect Case Incidence
Prevalence of Dental and Medical Doctors
Child Lead Screening and Levels
Insurance Status

Teen Suicide, Accident and Homicide Rate
Infant Mortality & Birthweight
Neonatal Abstinence Syndrome

Methods

Student Level: We use demographic and educational data to model the likelihood that a student has any mental health diagnosis using ordinary least squares regression.

- Demographic predictors: racial identity, ethnicity, housing status, immigration status, migrant status, and language spoken at home.
- Education predictors: suspensions, absenteeism, alternative placement, drop out status, special education status

$$Diagnosis_{ict} = \beta_0 + \beta_1 S_{it} + \beta_2 A_{it} + \beta_3 D_{it} + \beta_4 \alpha_c + \beta_5 \tau_t + \epsilon_{ict}$$

County Level: We compared outcomes between administrative and publicly-available data to see how they track with one another.

Results and Discussion

Overall, we find a high prevalence of mental health conditions across Tennessee public school students, with substantial heterogeneity across counties.

Student Level: Being a student who is chronically absent or has received punitive discipline is associated with higher rates of mental health diagnoses. Additionally, associations with demographic variables are identified.

County Level: There are very few publicly available datasets that track mental health, and publicly available health data does not closely correlate with medical claims data.

Next Steps

- We will refine the predictors using Principal Components Analysis.
- We will compare the use of public and private data to better understand the risk factors for childhood mental health conditions over time.