Data Analysis of Racial/Ethnic Disproportionality in Special Education

Dr. Edward Fergus
Roey Ahram

New York University
Steinhardt School of Culture, Education, and Human Development
Metropolitan Center for Urban Education
Objectives

- Develop a workable understanding of special education disproportionality
- Look at disproportionality through in-depth data analysis
  - Methods of data analysis
  - Levels of data analysis
Disproportionality Is:

The over-representation of specific groups in special education programs in relation to their representation in the overall enrollment, and/or the under-representation of specific groups in accessing intervention services, resources, programs, rigorous curriculum and instruction.
Disproportionality Looks Different in Different Districts

- The over-identification of culturally and linguistically diverse (CLD) students as disabled or under-identification as gifted and/or talented

- The over-identification of certain CLD populations in specific special education categories, such as ED, LD, SLI, or OHI
Disproportionality Looks Different in Different Districts

- The overrepresentation of CLD students receiving special education services in more restrictive classroom environments or segregated programs
- Significant discrepancies in the number of incidences, duration, and types of disciplinary actions, including suspensions and expulsions, experienced by CLD students compare to other students
Conducting an initial analysis of the special education data
• Three main data tools (calculations) are used to explore special education data:
  – Risk Index
  – Composition Index
  – Relative Risk Ratio
The risk index identifies at what rate, or amount of risk students of a particular racial/ethnic group have of falling into a particular category.

- What is the rate in which Black students are classified disabled, or how likely is it that a Black student will be classified as having a disability?

- What is the rate in which Black students with disabilities are suspended for more than 10 days, or how likely is it that a Black student with a disability will be suspended for more than 10 days?
The composition index gives the proportion of students by race/ethnicity in a particular category.

- Of the total district population, what percentage are Black students?
- Of the total SWD population, what percentage are Black students?
- Of the total suspended SWD population, what percentage are Black students?
Composition indexes are used to determine if a particular group is over or under represented in special education, in a particular disability, in a particular classroom setting, or in particular discipline practice.
Relative Risk Ratio

Relative risk ratios give a comparison of risk for one group in relation to the risk for all other groups.

• How much more likely is it for Black students to be classified disabled compared to all other students?

• How much more likely is it for Black students with disabilities to be suspended for more than 10 days compared to all other students with disabilities?
• We utilize measures of risk (risk index) to answer questions about the likelihood of students in a given racial/ethnic group receiving a particular treatment or experiencing a particular outcome.

• A relative risk ratio (risk ratio) is a comparison of the risks of a particular racial/ethnic group receiving a particular treatment or experiencing a particular outcome to the risk of the remaining racial/ethnic group receiving the same treatment or experiencing the same outcome.
Relative Risk Ratio

- Using Relative Risk Ratios we are able to answer questions such as:
  - How much more likely is it that a student from a particular racial or ethnic group will be classified as disabled relative to students in other racial or ethnic groups?
  - How much more likely is it that a student from a particular racial or ethnic group will be classified with a specific disability relative to students in other racial or ethnic groups?
  - How much more likely is it that a SWD from a particular racial or ethnic group will be placed in a most restrictive environment relative to SWDs in other racial or ethnic groups?
  - How much more likely is it that a SWD from a particular racial or ethnic group will be suspended for more than 10 days relative to SWDs in other racial or ethnic groups?
Calculating Relative Risk

**The Idea**

The Risk of Black Students Being Classified SWD

**Compared to**

The Risk of All Other Students Being Classified SWD

**The Formula**

\[
\text{Relative Risk} = \frac{(\text{Black SWD} - \text{Black enrollment})}{(\text{Total SWD} - \text{Black SWD})(\text{Total enrollment} - \text{Black enrollment})}
\]
Interpreting Relative Risk Ratios

• If a particular racial or ethnic group’s Relative Risk Ratio is 2.0, it means that students from that racial or ethnic group are twice as likely to receive a certain treatment relative to other students.

• If a particular racial or ethnic group’s Relative Risk Ratio is 1.0, it means that students from that racial or ethnic group are equally likely to receive a certain treatment as other students.

• If a particular racial or ethnic group’s Relative Risk Ratio is 0.50, it means that students from that racial or ethnic group are less than half as likely to receive a certain treatment as other students.
Levels of Special Education Data Analysis

Level I
- Overall District Classification Rate

Level II
- Classification rate, composition index and relative risk ratio by race/ethnicity

Level III
- Classification rate, composition index and relative risk ratio by race/ethnicity and classification type
- Classification rate, composition index and relative risk ratio by race/ethnicity and setting
- Classification rate, composition index and relative risk ratio by race/ethnicity and gender
Analyzing Special Education Data: Data Requirements

• In order to analyze special education you need to have the following data
  – District enrollment by race and gender
  – Special education enrollment by race and gender, classification, and placement

• The general and special education enrollment data should reflect the same school years; a lack in consistency prevents appropriate analysis
Examining the Results

- After inputting and running the formulas in each section, it is important to examine the results critically.

- Attempt to explain your findings (what you have noticed) in the context of the data and current research.

- Use the research to help guide your explanations.

- What did you notice?
  - Write down what you noticed.
  - What patterns are emerging and what possible problems are becoming apparent?

- Critical Analysis:
  - What are the possible explanations for your findings?
Computing measures of disproportionality

ANALYZING DISTRICT LEVEL SPECIAL EDUCATION DATA
Level 1: Overall Risk

Question 1: What is the overall risk of student being classified with a disability in the school district – i.e., the district classification rate?
Risk Index (Classification Rate) =

Total Number of Students with Disabilities

\[ \text{divided by the} \]

Total Number of Students in the District
Examining your results

• What did you notice?
  – What patterns are emerging and what possible problems are becoming apparent?

• Critical Analysis
  – What are the possible explanations for your findings?
Level 2: Risk Indexes, Compositions Indexes, and Risk Ratios by Race/Ethnicity

Question 2: What is the overall risk of student of a given racial/ethnic group being classified with a disability in the school district – i.e., the district classification rate by race/ethnicity?
Risk Indexes by Race/Ethnicity

Risk Index (Classification Rate) =

Number of Students with Disabilities of a Given Racial/Ethnic Group divided by the Total Number of Students in the District of the Same Racial/Ethnic Group
### Risk Indexes by Race/Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
<th>Hispanic</th>
<th>White</th>
<th>Asian</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Observed SWD</strong></td>
<td># classified</td>
<td># classified</td>
<td># classified</td>
<td># classified</td>
<td>Total # classified</td>
</tr>
<tr>
<td><strong>B. Total Enrolled</strong></td>
<td># enrolled</td>
<td># enrolled</td>
<td># enrolled</td>
<td># enrolled</td>
<td>Total # enrolled</td>
</tr>
<tr>
<td><strong>Risk Index</strong></td>
<td>A/B x 100</td>
<td>A/B x 100</td>
<td>A/B x 100</td>
<td>A/B x 100</td>
<td>A/B x 100</td>
</tr>
</tbody>
</table>

* Multiracial/Multiethnic and Native American Students are represented in the Totals
Examine your results

- What did you notice?
  - What patterns are emerging and what possible problems are becoming apparent?

- Critical Analysis
  - What are the possible explanations for your findings?
Level 2: Risk Indexes, Compositions Indexes, and Risk Ratios by Race/Ethnicity

Question 3: What is the racial/ethnic composition of SWD compared to the racial/ethnic composition of the entire district?
Composition Indexes by Race/Ethnicity

Number of SWD in a racial group divided by the Total number of SWD multiplied by 100

Compared to

Number of students in a racial group divided by the Total number of students multiplied by 100
### Composition of SWD by Race/Ethnicity

#### Observed Composition Index of District

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
<th>Hispanic</th>
<th>White</th>
<th>Asian</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Enrollment</strong></td>
<td>A # enrolled</td>
<td>B # enrolled</td>
<td>C # enrolled</td>
<td>D # enrolled</td>
<td>E Total # enrolled</td>
</tr>
<tr>
<td><strong>District Composition</strong></td>
<td>A/E x 100</td>
<td>B/E x 100</td>
<td>C/E x 100</td>
<td>D/E x 100</td>
<td></td>
</tr>
</tbody>
</table>

#### Observed Composition Index of SWD in District

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
<th>Hispanic</th>
<th>White</th>
<th>Asian</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SWD Enrollment</strong></td>
<td>A # classified</td>
<td>B # classified</td>
<td>C # classified</td>
<td>D # classified</td>
<td>E Total # classified</td>
</tr>
<tr>
<td><strong>SWD Composition</strong></td>
<td>A/E x 100</td>
<td>B/E x 100</td>
<td>C/E x 100</td>
<td>D/E x 100</td>
<td></td>
</tr>
</tbody>
</table>

* Multiracial/Multiethnic and Native American Students are represented in the Totals
Examining your results

• What did you notice?
  – What patterns are emerging and what possible problems are becoming apparent?

• Critical Analysis
  – What are the possible explanations for your findings?
Level 2: Risk Indexes, Compositions Indexes, and Risk Ratios by Race/Ethnicity

Question 4: How much more likely is it that a student from a given ethnic/racial group will be identified with a disability?
Write the Formula:

\[
\frac{\text{Black SWD} \ - \ \text{Black enrollment}}{\left(\text{Total SWD} - \text{Black SWD}\right) \ - \ \left(\text{Total enrollment} - \text{Black enrollment}\right)}
\]

Insert the numbers in the appropriate places in the formula:

\[
\frac{\text{Black enrollment}}{\left[\text{Total SWD} - \text{Black SWD}\right] \ - \ \left[\text{Total enrollment} - \text{Black enrollment}\right]}
\]

Complete all of the operations inside the parentheses:

\[
\frac{\text{Black enrollment}}{\left[\text{Total SWD} - \text{Black SWD}\right] \ - \ \left[\text{Total enrollment} - \text{Black enrollment}\right]}
\]

Divide inside the brackets:
Disproportionality is a condition in districts or schools with deep seeded root causes.

In order to help districts and schools address disproportionality, additional data should also be collected.
Looking at Data Is Just the Beginning...
Addressing Disproportionality

Initial Data Analysis: Creating a Data Book

In-depth Exploration: Deeper Inquiry Beyond the Initial Data

Action Research Supported Root Cause Analysis

Action Research Based and Data Informed Solutions
Creating a Data Book for Your District or School

• Data books are compilations of all of the relevant district or school data related to disproportionality including:
  – Demographic data
  – Achievement data
  – Special education data
• Each of these sets of data are compiled as a prelude to deeper inquiry
Demographic Data

• What is the current student demographics?

Deeper inquiry:
– What did the student demographics look like 5 years ago?
– Have there been any significant changes to the student demographics?
• What percentage of each racial/ethnic group reach proficiency in Math and ELA in the district or school?

Deeper inquiry

– What early interventions programs are in place, and how do students get those services?
– To what extent are these interventions implemented with fidelity and consistency?
Special Education Data

• What is the likelihood that a student from a particular racial or ethnic group will be classified as disabled, be given a specific disability classification, or placed in a most restrictive environment?

• What is the likelihood that a student with a disability from a particular racial or ethnic group will be suspended for more than 10 days?

Deeper inquiry

– What is the district referral to classification process?
– What is the district discipline process?
– Are the processes applied to students in the same way?
Looking at changing data

How do we know if districts are improving?
Looking at Changing Data

• In looking at changing special education data, the risk ratio and the classification rates have to be analyzed respective of each other

• This is a helpful method to judge whether or district interventions are working to reduce disproportionality
Looking at Changing Data

<table>
<thead>
<tr>
<th>Risk Index</th>
<th>Relative Risk Ratio</th>
<th>Interpretation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase</td>
<td>Increase</td>
<td>Disproportionality has <strong>increased</strong></td>
<td>The rise in the risk index indicates that the group’s risk has increased overall. Furthermore, the increase in the relative risk ratio indicates that the group’s risk has increased relative to all other students.</td>
</tr>
<tr>
<td>Increase</td>
<td>Decrease</td>
<td>Disproportionality has <strong>increased</strong></td>
<td>The rise in the risk index indicates that the group’s risk has increased overall. Thus, the decrease in the relative risk is most likely due to the increased risk of another group.</td>
</tr>
</tbody>
</table>
### Looking at Changing Data

<table>
<thead>
<tr>
<th>Risk Index</th>
<th>Relative Risk Ratio</th>
<th>Interpretation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease</td>
<td>Increase</td>
<td>Disproportionality has <strong>decreased</strong></td>
<td>The reduction in the risk index indicates that the group’s risk has decreased overall. The increase in the relative risk indicates that the risk of all other students has decreased to a greater extent.</td>
</tr>
<tr>
<td>Decrease</td>
<td>Decrease</td>
<td>Disproportionality had <strong>decreased</strong></td>
<td>The reduction in the risk index indicates that the group’s risk has decreased overall, which is further evidenced by the decrease in the relative risk.</td>
</tr>
</tbody>
</table>
Where do we go from here?

NEXT STEPS
Questions and Comments

Dr. Edward Fergus  
*Deputy Director*  
Metropolitan Center for Urban Education  
eaf7@nyu.edu

Roey Ahram  
*Project Associate*  
Metropolitan Center for Urban Education  
ra977@nyu.edu