

Survey Says! Or Does It?

Analyzing Nonresponse Bias in Survey Results



2023 OSEP LEADERSHIP AND PROJECT DIRECTORS' CONFERENCE





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Presenters

- Tamara Nimkoff, IDEA Data Center (IDC)
- Amber Stohr, IDEA Data Center (IDC)



Outcomes

Participants will be able to

- Reflect on OSEP requirements for data quality for select State Performance Plan/Annual Performance Report (SPP/APR) indicators
- Reflect on the strengths and challenges of your own state's methods for collecting and analyzing data for select SPP/APR indicators
- Explore the functionality and main features of a new tool that states can use to analyze survey response rates, representativeness, and nonresponse bias to address OSEP data quality requirements



Agenda

- OSEP requirements for data quality for select SPP/APR indicators
- Methodology for collecting and analyzing data for select SPP/APR indicators
- *NRBA App*, a tool that states can use to analyze survey response rates, representativeness, and nonresponse bias to address OSEP data quality requirements



SPP/APR Requirements Overview

- Each year, states report on child outcomes through SPP/APR results indicators. These outcomes include
 - Parental report that schools facilitated parent involvement as a means of improving services and results for their children with disabilities (Part B Indicator 8)
 - Post-school outcomes for youth with individualized education programs (IEPs) within one year of leaving high school (Part B Indicator 14)
- Most states use surveys to gather these outcomes
 - Attempted census: Conduct survey for all eligible children or leavers each year
 - Sample: Conduct survey for a subgroup of eligible children or leavers each year
- Along with reporting on progress in outcomes, states must report on the quality of that year's respondent data for these indicators



SPP/APR Data Quality Requirements

For Indicators 8 and 14, states must report on the

- Survey **response rate** overall and by key subpopulations (race/ethnicity and at least one additional stakeholder-approved demographic variable)
- Extent to which (based on a **state-defined metric**) the respondent data are **representative**
 - Demographics of the children for whom parents responded are representative of the demographics of children receiving special education services (Indicator 8)
 - Demographics of respondent youth are representative of the demographics of youth who are no longer in secondary school and had IEPs in effect at the time they left school (Indicator 14)



SPP/APR Data Quality Requirements (cont.)

- Strategies the state will implement to increase the **response rate** year over year, particularly for those subgroups that are **underrepresented**
- Description of analysis of **response rates** including any **nonresponse bias** the state identified in the data
- Steps the state has taken to reduce **nonresponse bias** and promote responses from a broad cross section of parents of children receiving special education (Indicator 8) or leavers (Indicator 14)



Methodology: Assess Response Rates and Representativeness

- Calculate response rate: Total number of survey respondents divided by the number of eligible potential respondents to whom you distributed the survey
 - Examine your response rates based on subgroups that are meaningful within your state
- Determine representativeness: Proportion of survey respondents in comparison to the target population with respect to a specific characteristic, such as race/ethnicity
 - Response data can be representative with respect to some characteristics and not others



Response Rates and Representativeness: An Example

- Based on the state's threshold (+/- 3% difference), response data are representative with respect to student race/ethnicity but **not** with respect to geographic region.

Race/ethnicity	Percent of the child population	Percent of survey respondents' children
American Indian or Alaska Native	1%	0.5%
Asian	10%	11%
Black or African American	15%	15%
Hispanic/Latino	37%	36%
Native Hawaiian or Other Pacific Islander	10%	11%
Two or more races	4%	3%
White	32%	33%

Geographic region	Percent of the child population	Percent of survey respondents' children
Region 1	13%	15%
Region 2	14%	12%
Region 3	15%	16%
Region 4	19%	10%
Region 5	14%	15%
Region 6	22%	32%



Methodology: Assess Nonresponse Bias

- Identify nonresponse bias: Systematic error that results from nonresponse to a survey; arises when **two conditions** occur
 - Certain subgroups are less likely to respond to a survey, resulting in their systematic underrepresentation in the survey data
 - The underrepresented subgroups differ from other subgroups in what the survey is trying to measure (e.g., parent involvement, post-school outcomes)
- When subgroups are not representative in the response data, examine the data to determine if subgroups differ in terms of what you're trying to measure
- Identify potential nonresponse bias with respect to specific variables



Adding Nonresponse Bias to the Example

Region 4 is underrepresented in the survey responses, and respondents from Region 4 differ in the Indicator 8 outcome. Therefore, there's potential for nonresponse bias in the survey estimate based on region. The overall survey estimate of percent agreement may be too high.

Region	Percent of the child population	Percent of survey respondents' children	Percent agreement for Indicator 8
Region 1	13%	15%	60%
Region 2	14%	12%	58%
Region 3	15%	16%	59%
Region 4	19%	10%	25%
Region 5	14%	15%	59%
Region 6	22%	32%	58%



Addressing APR Data Quality Requirements

- To best address OSEP data quality requirements for response rates, representativeness, and nonresponse bias, a state needs to collect or have access to certain data for analysis. These include
- Information on each person invited to submit a survey (whether they responded or not)
 - A unique ID for each individual invited to respond to the survey
 - Knowledge of survey eligibility for each individual
 - Key demographic data for each case
 - Student race/ethnicity required by OSEP
 - Other meaningful variables determined by the state and stakeholders (e.g., student disability category, high school exit reason, home language)



Addressing APR Data Quality Requirements (cont.)

- If the dataset does not contain records for nonrespondents—student population total and subgroup totals for relevant demographic variables
- If the state collected the data by sampling—variables that identify how the sampling was done (e.g., sampling weights, strata, clusters)
- If the state is interested in how survey results may change with more data collection effort—a variable that reflects data collection level-of-effort (e.g., contact attempts, increasing incentives)



Reflection Time

- How does your state collect and track survey responses for Indicators 8 and 14?
- What variables are part of your Indicator 8 or Indicator 14 dataset?
- What demographic data do you collect or have access to?
- How does your state disaggregate Indicator 8 or Indicator 14 data for an understanding of response rates that is meaningful within your state?
- Has your state identified any subgroups that are less likely to respond to the survey and also differ from other subgroups in the survey outcome?



NRBA App Overview

(1 of 4)

- IDC's new interactive application that states can use to analyze survey response rates, representativeness, and nonresponse bias to address OSEP data quality requirements
- Users select from analysis questions
 - What are our response rates, and do they differ across subgroups?
 - Are some subgroups in the population overrepresented or underrepresented in our respondent data?
 - How do survey outcomes differ across subgroups?
 - Can statistical adjustments reduce nonresponse bias in our data?



NRBA App Overview

(2 of 4)

- Application provides a point-and-click user interface for analyzing data using the open-source program RStudio
- It maintains your data securely stored on your local machine
- First-time users install the free statistical programs R and RStudio, along with the specific NRBA package
- Returning users simply open RStudio on their computer to launch the app
- Users access the app within their preferred web browser—Google Chrome, for example—while RStudio runs the computations in the background



NRBA App Overview

(3 of 4)

- The app consists of three modules
 - **Setup:** Import a dataset to use for analysis and indicate how you collected the data
 - **Analysis:** Select analyses for the app to run to answer questions about response rate, representativeness, and nonresponse bias and choose which analysis results statistics to save in a report
 - **Report:** Export output tables summarizing the analyses to an Excel file for later use



NRBA App Overview

(4 of 4)

- Application provides in-app assistance through written instructions and tooltips
- Application offers accompanying User's Guide
- States can leverage the technical assistance IDC provides to make the most of this application
- States can contact their IDC State Liaison or email IDEAdata@westat.com to connect with a TA specialist



Demonstration of IDC's *NRBA App*



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Questions?



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Reflection Time II

- What was something new I learned today?
- What do I want to know more about?
- What's something new I plan to do?



Resource Spotlight

- IDEA Data Center website, <https://ideadata.org/>
- Individuals with Disabilities Education Act (IDEA) website, <https://sites.ed.gov/idea/>
 - Brings together IDEA information and resources from the Department and its grantees
- IDEAs That Work, <https://osepideasthatwork.org/>
 - For information from research to practice initiatives fund by OSEP that address the provisions of IDEA and Every Student Succeeds Act (ESSA).
 - Includes resources, links, and other important information relevant to OSEP's research to practice efforts.





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