Validating the results of a nationally representative probability-based panel survey for COVID-19, United States, 2020–2022

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Survey background and purpose

Public health emergency called for timely data to fill information gaps

- Surveillance data was not complete
- There was limited information on behaviors of cases, contacts after notification
- Landscape in pandemic could change quickly

Robert Santos (2014) fit-for-purpose framework balances:

- available resources
- rigor of research design and implementation
- nature of the insights needed to effectively address the research questions

Key concerns about data quality from panel

- **Bias from panel methodology: high completion rate, but low overall response rate**
- **Self-reported data: recall error from long reporting period**

Survey design and administration

- **Ipsos Knowledge Panel**
  - Probability-based sample, representative of adult U.S. population
  - Self-administered, voluntary online survey
  - Available in English and Spanish
- **Pre-test interviews**
- **Survey fielded Feb-March 2022**
  - 4-week field period

- **22,514 panel members sampled**
- **15,923 offered eligibility screener completed (70%)**
- **9,269 met eligibility criteria and completed (58%):**
  - Positive SARS-CoV-2 test result (cases, n: 9,269), or
  - Notification of exposure (contacts, n: 5,369)
- **Response rate 4%** (AAPOR 2023)
- **Weighted to CPS, ACS**

Research questions

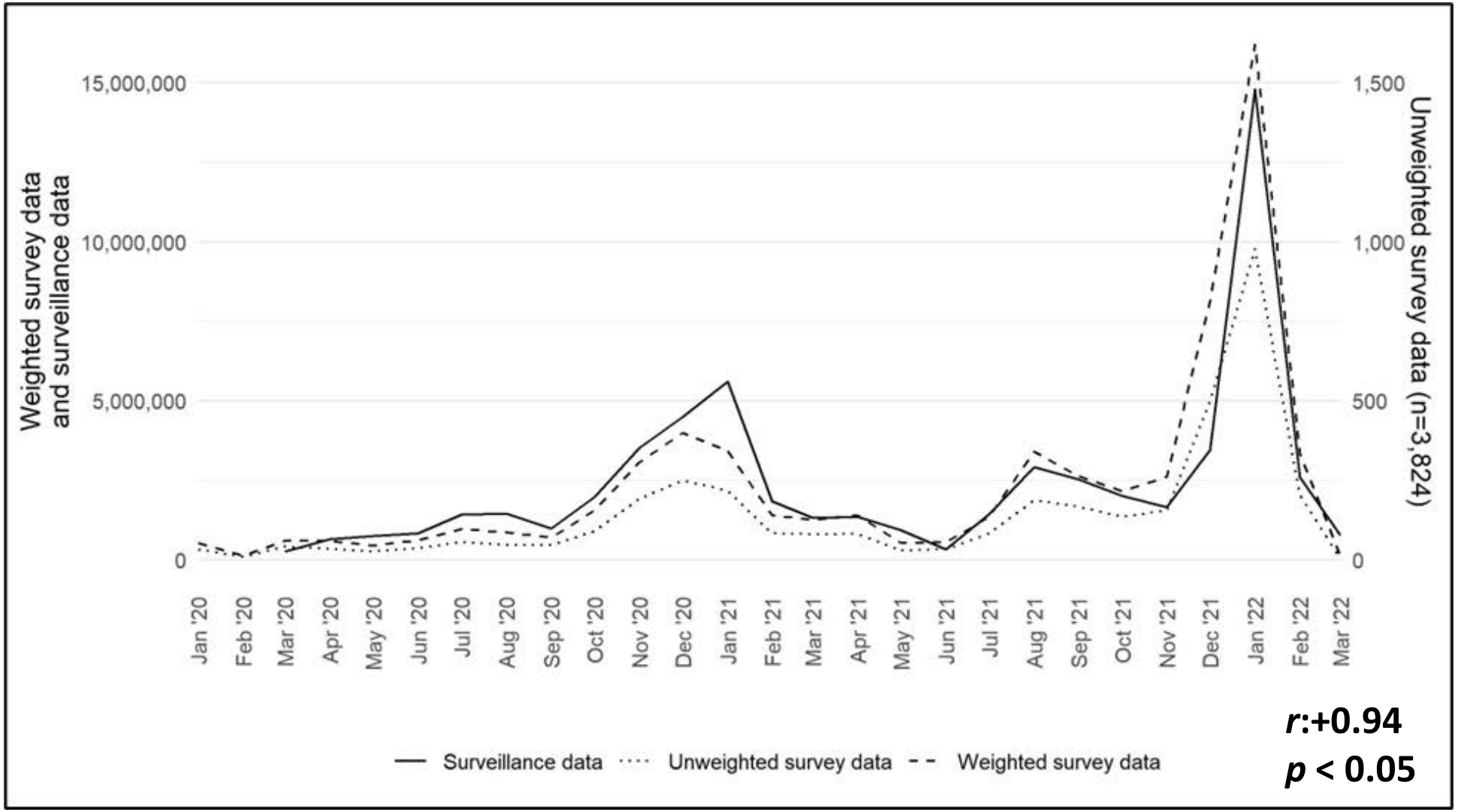
1. Overall, how well did the case-based survey data align with CDC surveillance data of the number of reports of all adults (aged 18 years or older) who tested positive for SARS-CoV-2?

2. How well did the case-based survey data align with CDC surveillance data of the number of reports of all adults who tested positive for SARS-CoV-2 by select demographic characteristics?

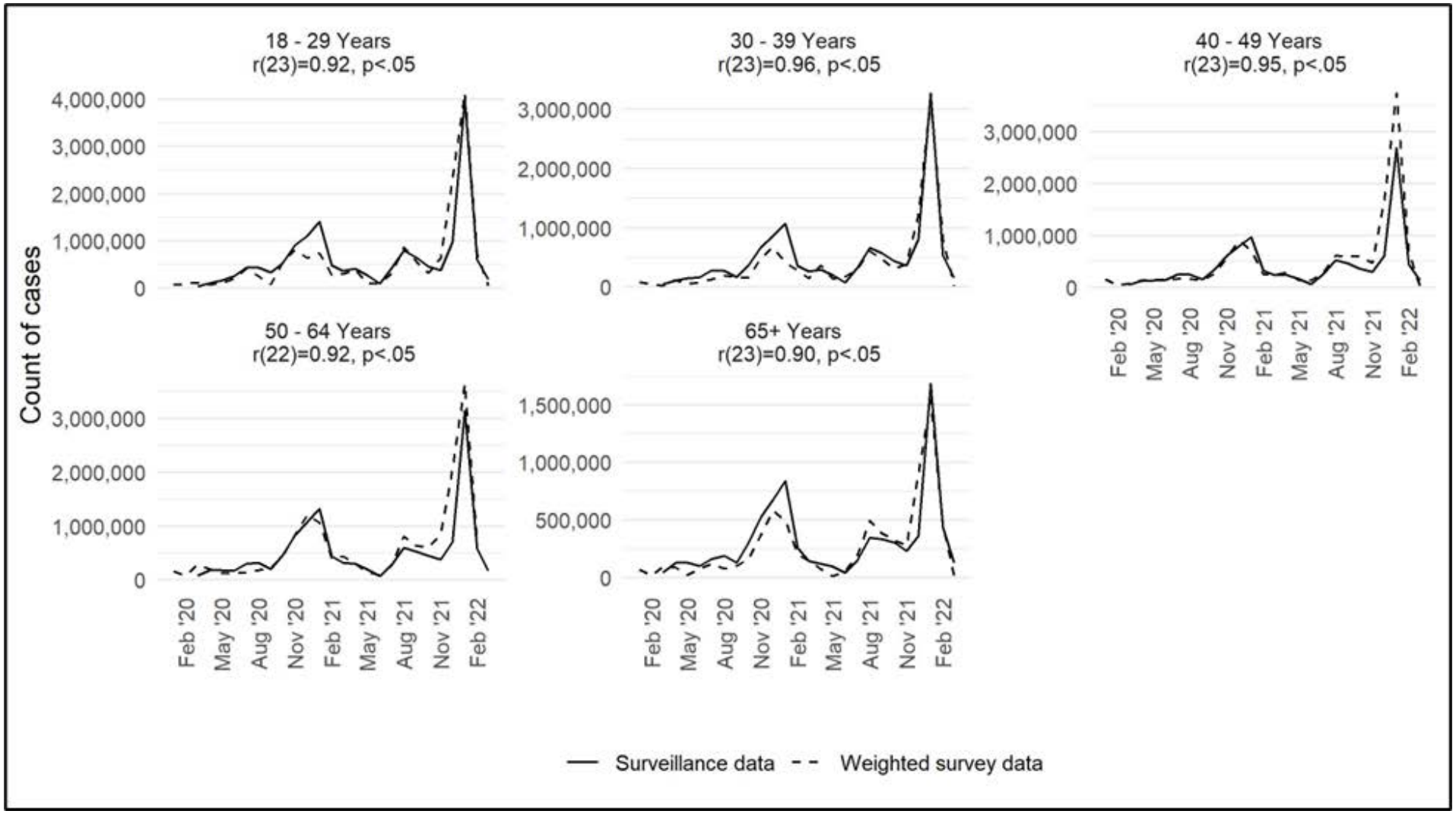
Methods used to answer these questions

- **Compared survey results to CDC surveillance data in the same time period**
  - March 2020 to March 2022
  - Subtracted fatalities from surveillance data
- **Created epidemiological curve**
  - Aggregate cases by month, year for both data sets
  - Visualize distribution of cases overall, then by age, sex, race/ethnicity
- **Calculated Pearson's correlation coefficients (r) and *p* values**
  - Overall and age, sex, race/ethnicity

Findings on Q1: Survey data highly correlated with CDC surveillance data on overall case counts by month



Findings on Q2: Survey data remained highly correlated with CDC surveillance data across age groups and other demographics



Findings in summary

- **Unique opportunity for comparison survey panel data with surveillance data**
  - Found high correlation overall and by age group
- **Findings validated that survey data mirrored U.S. adult population of cases**
  - Strengthens confidence in the data
    - Despite low response rate
    - Combined with pre-test results, allays concerns about reporting error for long recall period
- **Provides quality data to inform decision making**
  - Fills knowledge gaps on behaviors of cases, contacts
  - Opportunities to enhance findings from surveillance data using demographics, other covariates

Limitations in each data set

Panel survey data

- Self-administration data subject to reporting error
- Does not include:
  - Adults in group quarters
  - Deceased prior to survey period
  - Adults with language or literacy barriers

CDC surveillance data

- Cases identified and reported to CDC
- Missing values (race, ethnicity)

Key takeaways

1. **Low response rates do not always correlate with poor quality data**
   - Our respondents closely mirrored CDC surveillance data
   - Validation our results on case counts by month mirrored the available gold standard

2. **Panel survey met the need: fit-for-purpose data collection**
   - Timely, valid data
   - Low(er) cost, recruitment costs shared across studies
   - Filled critical information gaps about behaviors of cases and contacts (Oeltmann et al. 2023)

Contact us for more information

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Resources

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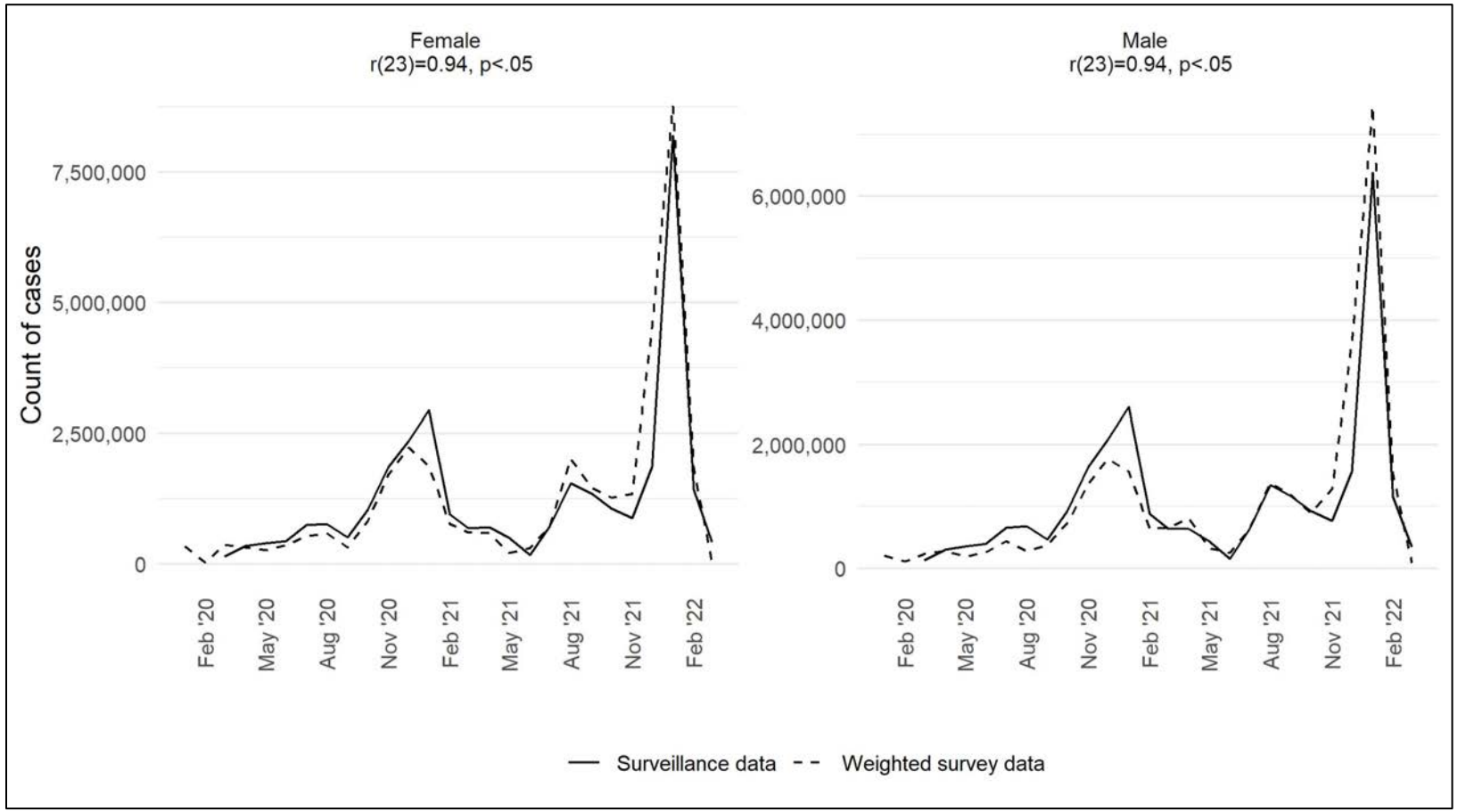
Questions?

Supplemental Table 1. Monthly COVID-19 case counts in the United States by sex and data source (CDC surveillance and weighted survey), excluding fatalities, January 2020 to March 2022



Supplemental table 2. Monthly COVID-19 case counts in the United States by race/ethnicity and data source (CDC surveillance and weighted survey), excluding fatalities, January 2020 to March 2022