Estimation of Opioid Use Disorder Prevalence Under Unique Data Scenarios: A Simulation Study

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Background

- This research aims to improve "capture-recapture" analysis - a method for estimating the number of people who use opioids living in a jurisdiction while addressing underreporting in surveillance, particularly in demographics where data may be increasingly sparse.

Methods

- A population was created with simulated capture histories and demographic information, then we examined the accuracy of estimates between Poisson and Negative Binomial (NB) distributions with log-linear models.
- Model efficacy was benchmarked by comparing model estimates against the simulated ground truth.

Results

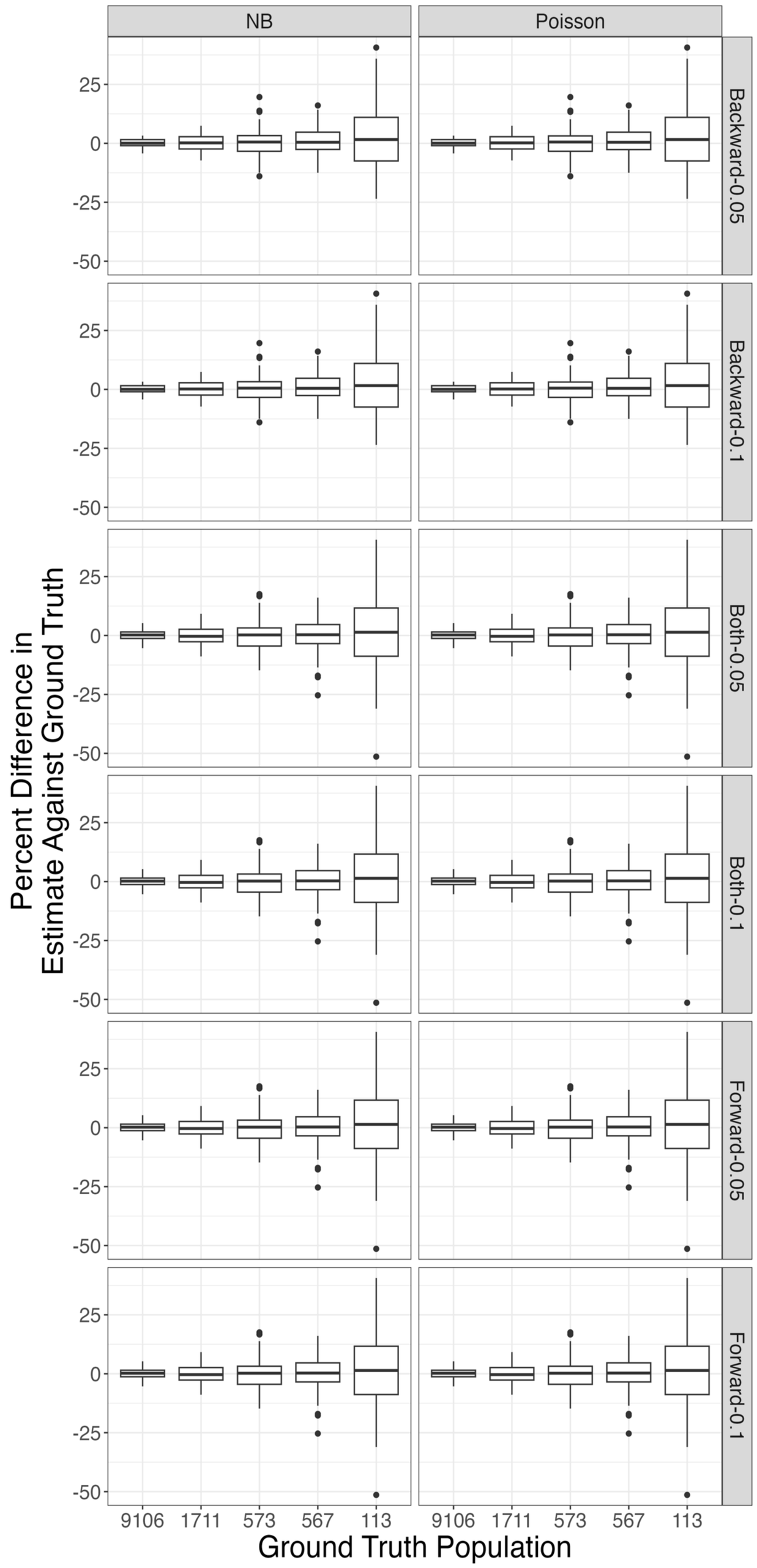
- As populations become small, single point estimation using capture recapture loses accuracy showing a potential lack of robustness with respect to capture histories and population size; however, this lack of robustness can be addressed through taking the mean of bootstrapped estimates.
- This indicates that, with bootstrap methods, we can recover the true prevalence of opioid use disorder in situations where data on certain demographics is sparse.

Takeaway

CRC is a valuable method for estimating the hidden prevalence of OUD, but its effectiveness depends on selecting appropriate models based on available data. Through contrasting different approaches, we highlight the estimation process for strata-specific prevalence and interpret strengths and limitations of common model selection strategies, enhancing the precision of OUD prevalence assessments for uniquely stratified and captured data.

Outcomes

[[TABLE OF ESTIMATE FOR 2021 HERE]] – seeing if I can get 2022 data from the PHD in time



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