

Participant Retention in a Longitudinal Study After the Deepwater Horizon Oil Spill

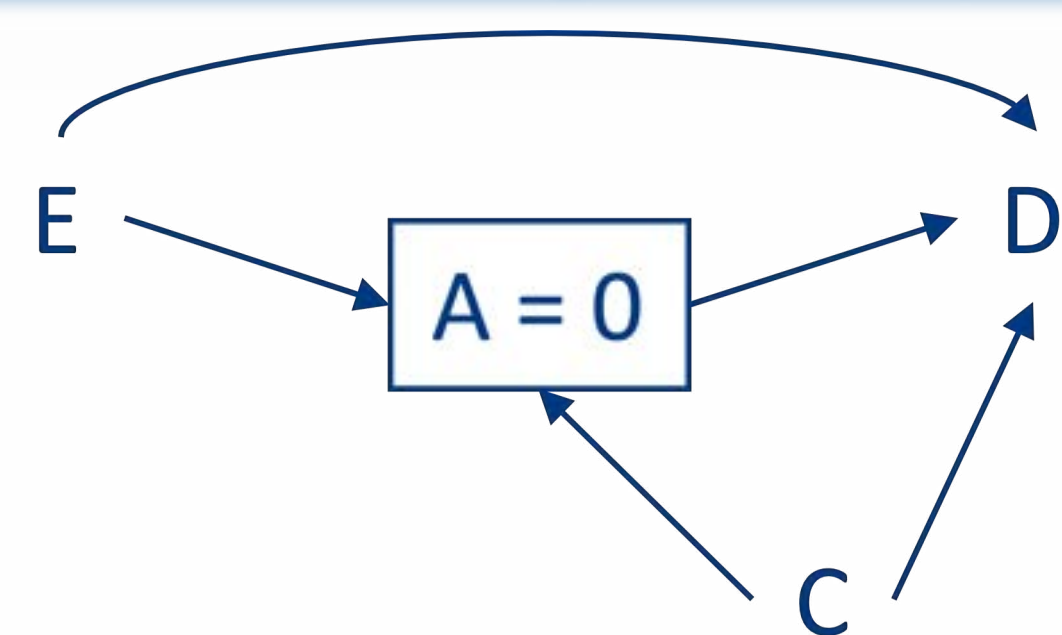
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Introduction

- Researchers have increasingly used longitudinal epidemiologic methods to study the long-term effects of disasters.
- By design, longitudinal studies introduce the chance that individuals may be lost to follow-up; therefore, their experience will be unaccounted for in analyses.
- Systematic differences between those that leave the study and those that stay (i.e., selective attrition) likely introduce bias.

Motivating Example



Causal DAG depicting introduced attrition bias between the exposure (E) and the outcome (D) when we condition on not being lost to follow-up (A) and there is a common cause (C) between A and D.

Exposure (E) – Hurricane Wind Damage

Outcome (D) – Post-Traumatic Stress Disorder

Selection (A) – Leaves Impacted Area

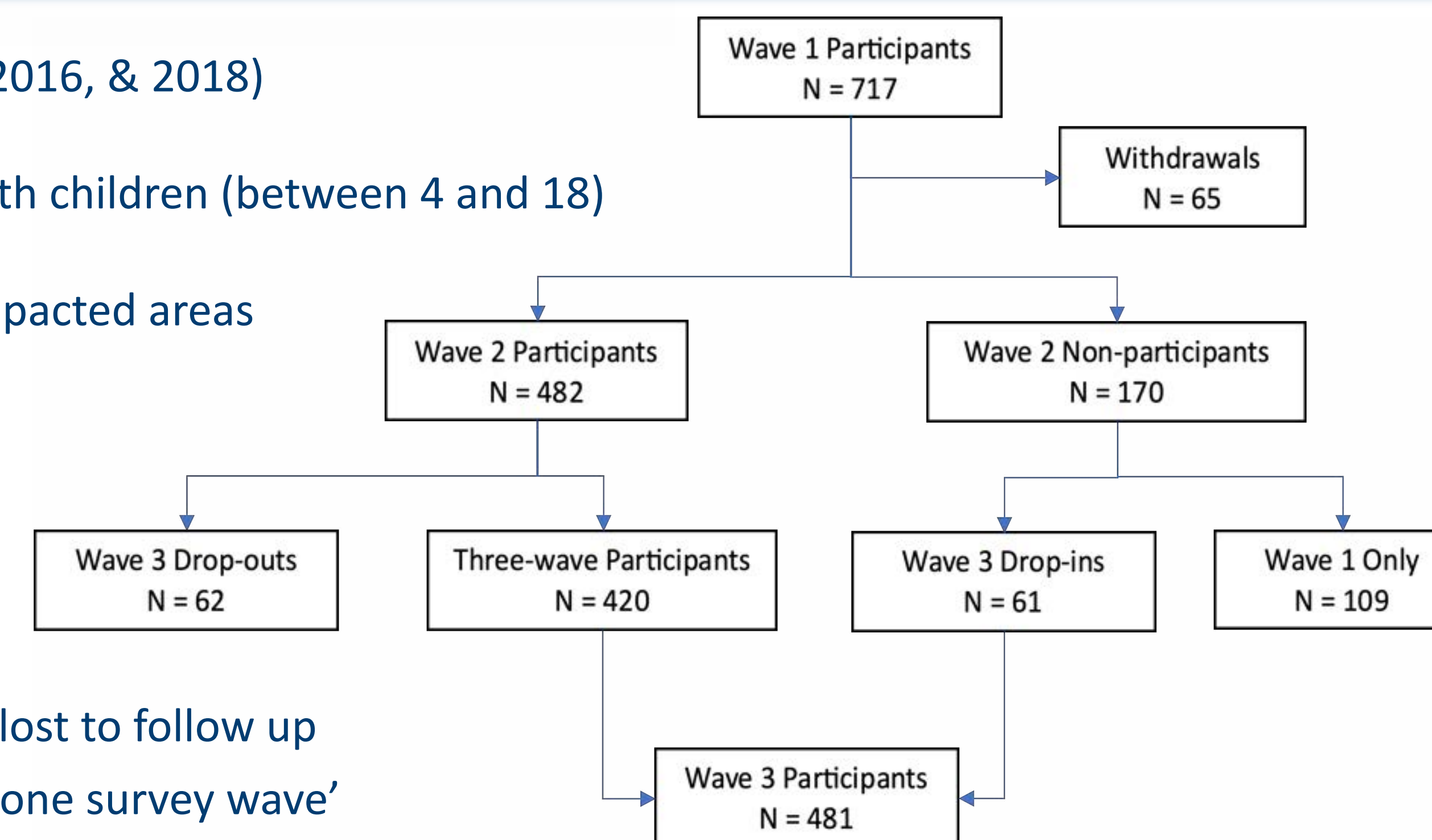
Common Cause (C) – Income / Moveability

Purpose & Research Question

- Classify attrition patterns.
- Assess characteristics associated with attrition.
- Assess exposures associated with attrition.
- Assess outcomes associated with attrition.

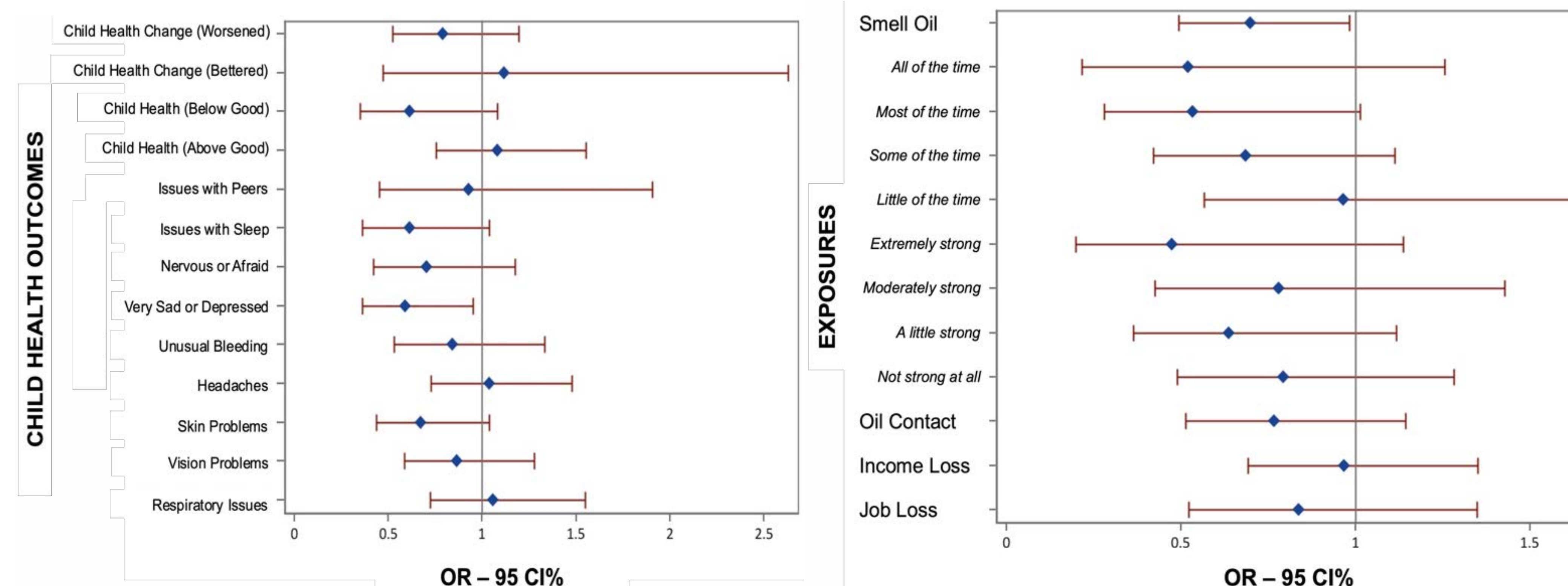
Subjects & Methods

- Three-wave longitudinal study (2014, 2016, & 2018)
- Southeastern Louisiana households with children (between 4 and 18)
- Wave 1: 717 families living in highly impacted areas
- Binary Logistic Regression:
 - Identify Wave 1 predictors of being lost to follow up
 - Lost to follow-up = ‘missing at least one survey wave’
 - Only including non-withdrawals at Wave 1 (n = 652)



Results

- Respondents with the youngest children (4, 5, 6) had the highest likelihood of being lost to follow-up.
- White, non-Hispanic individuals were likelier to complete all survey waves than all other self-reported race categories.
- Smelling oil was the only exposure statistically associated with continued participation and displays a graduated relationship with recalled frequency, but not recalled strength of the smell.
- Reporting spill exposure or poor health at W1 generally decreased the likelihood of being lost to follow-up.



Odds ratio (OR) forest plots show the likelihood of missing at least one survey wave.

Conclusions

- Overall, high retention rate (73%) over four years.
- Adds new disaster context to the characteristics that drive loss to follow-up and may help inform future retention strategies in studying long-term health effects from environmental disasters.
- The cohort was enrolled approximately four years after the DHOS, which is a limitation.

Directions for Future Research

- Use multinomial logistic regression to identify predictors of attrition profile membership.
- Quantifying the potential impact of bias on measures of association.
- Repeat analyses are needed to determine if findings are consistent across studies.

Research Support

COLUMBIA CLIMATE SCHOOL
NATIONAL CENTER FOR DISASTER PREPAREDNESS



Baton Rouge Area Foundation



Public Data Reference

- Wave 2: <https://doi.org/10.7266/n7-hjz4-w930>
- Wave 3: <https://doi.org/10.7266/n7-9ftv-yd07>