

## Measures of Respiratory Health in the PSID

Edith Chen  
Jean Yeung

- I. What constitutes respiratory health?
  - A. Most common respiratory diseases: asthma, chronic obstructive pulmonary disorder, etc.
  - B. Prevalence of these diseases in childhood & adulthood
  
- II. Why is it important to study respiratory health?
  - A. Links between socioeconomic status and respiratory diseases such as asthma
  - B. Wide array of contributors to respiratory disease that PSID could inform about, including environmental exposures, neighborhood conditions, housing condition, family diet and health behavior, family relationships, etc.
  - C. Cost/consequences of respiratory health in childhood and adulthood – including economic, social/psychological costs. Adulthood outcomes include education attainment, wages, health, family formation behavior (such as marriage). Childhood outcomes include cognitive skills, school performance (such as heldback, absenteeism), social/psychological well-being, health status, health expenditures.
  
- III. Comparative advantages of PSID in generating scientific knowledge: Panel design vs. cross-sectional/repeated cross sectional designs that are most often seen in the literature. National sample that represents a wide range of populations with different level of SES. Oversampling of black low income population that allows comparison between black and white population. Types of research questions that could be addressed in PSID with the collection of respiratory measures:
  - A. How does socioeconomic status relate to respiratory outcomes?
  - B. What are the mechanisms through which SES and race affect respiratory health?
  - C. Are associations different across generations (e.g., parents vs. children)?
  - D. Are associations different with different socioeconomic indicators? For example, is income or occupation more strongly related to respiratory health?
  - E. How do changes in income/wealth relate to changes over time in respiratory health?
  - F. How does SES predict progression of health status across life stages?

- G. Are there critical periods (e.g., early life) during which socioeconomic factors get embedded biologically to influence respiratory health across the lifecourse?
  - H. What is the relative contribution of socioeconomic factors compared to other factors (e.g., environmental exposures, neighborhood characteristics, genetic influences) in predicting respiratory health?
  - I. How does genetic vulnerability interact with social or physical environment variables to influence respiratory health?
  - J. How do demographic factors, such as marital status, family size, gender, ethnicity, etc., affect respiratory health?
  - K. How do birth/postnatal factors (e.g., birth weight, breastfeeding, birth order) affect respiratory health?
- IV. Synergies with key features of the PSID
- A. The above types of research questions would take advantage of the longitudinal assessments in the PSID
  - B. The above types of research questions would take advantage of the multi-generational assessments in the PSID
  - C. The above types of research questions would take advantage of the geospatial data in the PSID
  - D. The above types of questions could take advantage of the PSID Child Development Supplement, which has a wide range of measures on cognitive factors, social/psychological factors, health and well-being, as well as medical expenditures, insurance, and children's time diary data (examining children's activities)
  - E. These research questions could also make use of PSID's collection of retrospective data on childhood health history
- V. Measures used to assess respiratory health
- A. Self report: symptoms, functional limitations, school/work absence
  - B. Health care contacts: MD visits, hospitalizations, prescription info
  - C. Lung function measures: spirometry, methacholine challenge, peak flow
  - D. Allergy tests: skin prick, blood tests for IgE
  - E. Genetics: heritability of respiratory diseases such as asthma, identification of genes predicting vulnerability to such diseases
  - F. Discuss validity of measures & value added with these methods
- VI. Ethical and legal concerns
- A. Most of the respiratory measures are fairly non-invasive, and hence would not pose large ethical concerns

- B. Collection of genetic information would raise ethical issues related to possible identification of genetic risk for disease, as well as questions about privacy, use of genetic data, etc.
  - C. Geospatial data are considered sensitivity data and could raise issues of confidentiality
- VII. Operational aspects of data collection
- A. Staff training required for collection of respiratory health measures
  - B. Issues of where data collection would occur (home vs. lab)
  - C. Participants' responses to respiratory health measures (e.g., discomfort associated with methacholine challenge)
  - D. Home collection approaches such as peak flow measures raise issues about insuring compliance from study participants
  - E. Home collection approaches may raise issues about study burden as these would need to be collected by participants repeatedly over days
- VIII. Cost
- A. Equipment cost (per site if measures conducted in lab)
  - B. Cost for home collection measures (e.g., peak flow meters) would be per participant assessed within the same time window (as each one would need to be provided with a peak flow meter)
  - C. Cost for staff time to administer respiratory health measures
  - D. Possible cost of physician time to monitor quality of technique with respiratory health assessments, and possibly to be available in case of difficulties with assessments (e.g., methacholine challenge)