



The Association between Preterm Birth and Adult Respiratory Symptoms

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Introduction

- ❖ Although medical advances have improved survival rates for children born preterm, preterm birth remains both a common and medically serious phenomenon.
- ❖ Compared to their term-born counterparts, people born pre-term are more likely to have respiratory issues, including asthma. The more preterm a person is born, the higher their risk is of developing asthma (Harju et al. 2014).
- ❖ Moreover, the symptoms of preterm children with asthma or AHR (airway hyperresponsiveness) are less associated with expected risk factors for asthma, including inheritance, allergies, and exposure to smoking (Halvorsen et al. 2005).
- ❖ Further research has given weight to the significance of these findings, indicating that poor airway function is a risk factor for developing chronic obstructive pulmonary disease (COPD) in adulthood (Stern et al. 2007) and that the lung dysfunction experienced by survivors of preterm birth might be different from typical asthma and thus require different treatment (Bolton et al. 2015).

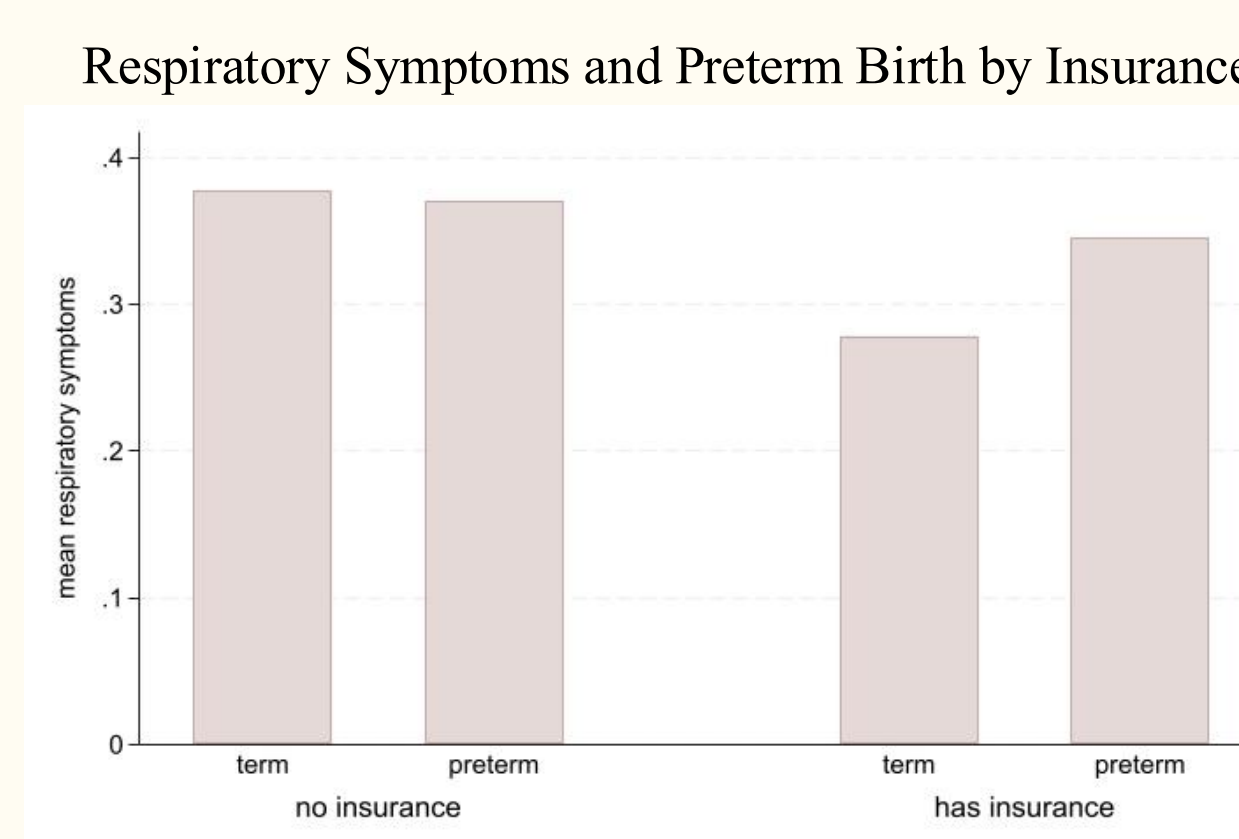
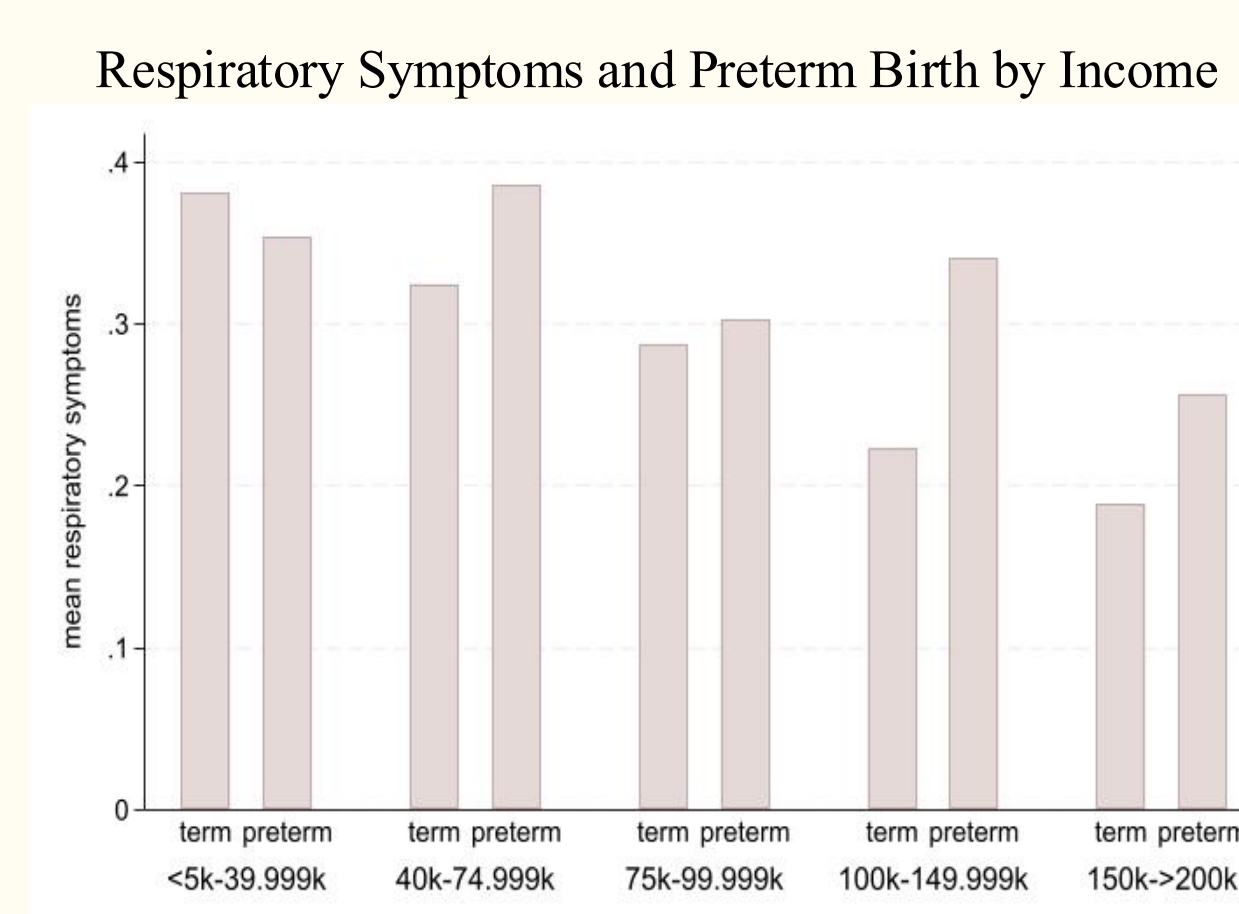
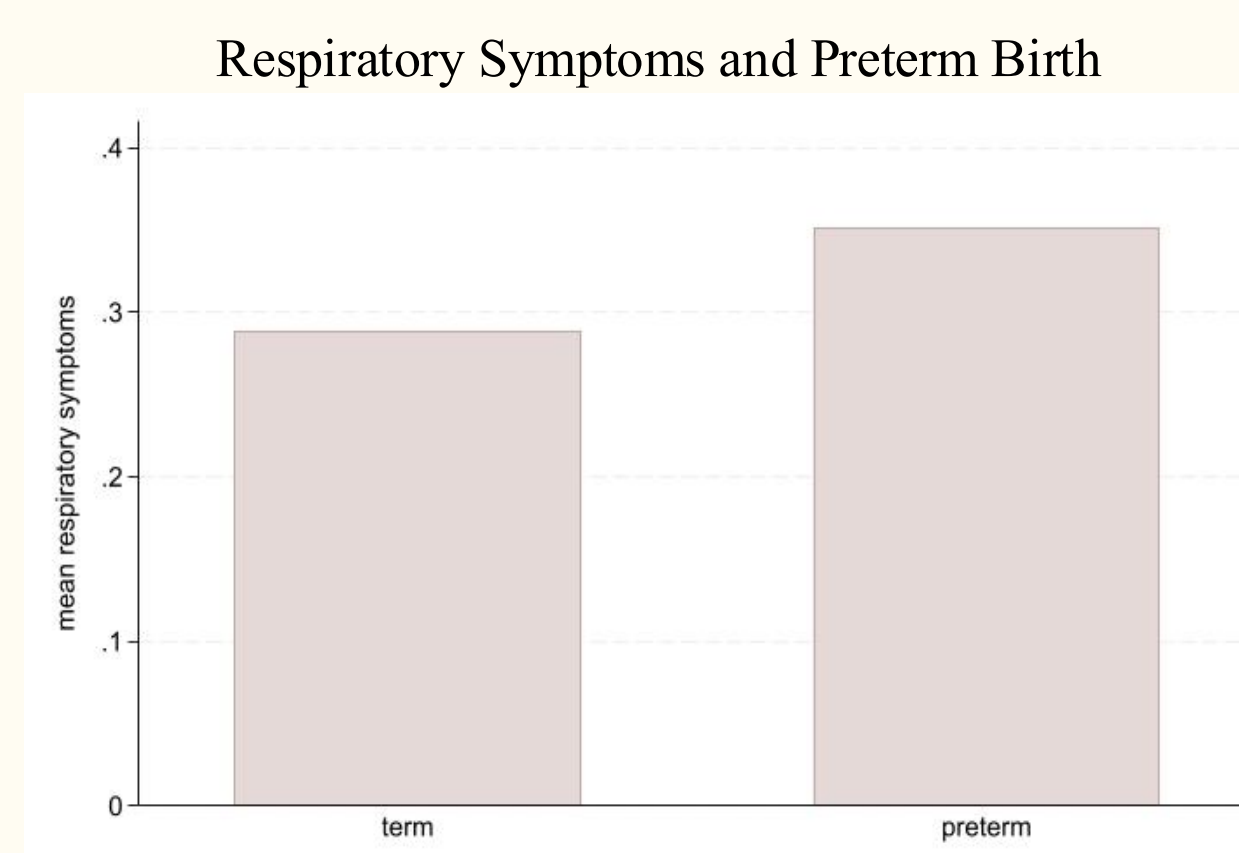
Methods

Sample

- ❖ Adults aged 43–39 ($n = 4,196$) were asked a series of questions during the 2018 wave of the US National Longitudinal Survey of Adolescent Health (ADDHealth).
- ❖ The same group of respondents has been sampled at different intervals after an initial survey was conducted when participants were in 7th-12th grade.

Measures

- ❖ Preterm birth: Respondents answered the question: "A preterm delivery is one that occurs before 37 weeks in pregnancy (more than 3 weeks early). As far as you know, were you born preterm?"
- ❖ Respiratory symptoms: A dichotomously-coded variable accounting for presence of regular respiratory symptoms (wheezing and coughing) and/or a diagnosis of asthma, chronic bronchitis, or emphysema.
- ❖ Income: Measured total household income in the preceding year by sorting respondents into five buckets: \$5,000 (or less)–\$39,999, \$40,000–\$74,999, \$75,000–\$99,999, \$100,000–\$149,999 and \$150,000–\$200,000 (or more).
- ❖ Insurance: Measured presence or absence of insurance.



Research Questions

- ❖ Is there an association between preterm birth and respiratory symptoms in adulthood?
- ❖ Is this association impacted by income or by the presence of health insurance?

Results

- ❖ A chi-square test indicated a positive and statistically significant association between preterm birth and respiratory symptoms ($X^2 = 5.7438$, $p = 0.017$).
- ❖ A logistic regression likewise indicated a positive and significant relationship, in which those born preterm have roughly 1.3 times higher odds of experiencing respiratory symptoms than those born at term (O.R. 1.336069, CI 1.053508–1.694415).
- ❖ When controlling for insurance, preterm birth remains significantly associated with the presence of respiratory symptoms, indicating that insurance is not a statistically significant modifier (O.R. 1.3269, CI 1.044342–1.685906).
- ❖ Controlling for income, however, renders the relationship no longer statistically significant, indicating that income level does have an impact on the relationship between preterm birth and presence of respiratory symptoms.

Discussion

- ❖ Preterm birth is accepted to increase the likelihood of asthma and other respiratory symptoms in children, and some of these symptoms have been seen to persist into adulthood.
- ❖ In the event that preterm birth does increase the likelihood of respiratory symptoms in adults, those included in this demographic should exercise particular restraint with regard to risk factors for breathing issues. An association would also indicate that preterm birth is a factor doctors should be aware of when evaluating adults who present with respiratory issues.
- ❖ Further, if increased symptoms are also associated with lower income levels, this could present justification for a program providing education and resources about respiratory illness, symptom management, and treatment plans to low-income, pre-term born adults.
- ❖ In both of the above cases, increased knowledge and action would lessen the likelihood of severe respiratory symptoms and/or the development of diseases like COPD in the relevant population(s).