Prevalence of learning disability among US children with asthma and diabetes

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Learning disabilities

- Characterized by significant difficulties in listening, speaking, reading (either reading skill or reading comprehension), writing, reasoning, mathematics (either in mathematical calculation or mathematical reasoning), foreign languages, coordination, spatial adaptation, memorization and social studies.

Background

- Learning disability (LD) is common among US children and affects about 1 in 10.
- The likelihood of LD is high among children with multiple special health care needs.
- The purpose of this project was to explore the association of LD with two most common childhood chronic diseases, asthma and diabetes.

Study questions

- Is prevalence of LD higher in US children with asthma than in those without?
- Is prevalence of LD higher in US children with diabetes than in those without?
- Do the differences persist after adjusting for sociodemographic factors?

Data source

- 2003 National Survey of Children's Health
- This nationwide telephone survey, sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration, provides a breadth and depth of data pertaining to the developmental and behavioral health of children in the United States.

National Survey of Children's Health

- The NSCH data were obtained by the Centers for Disease Control and Prevention National Center for Health Statistics using the State and Local Area Integrated Telephone Survey program.
- The State and Local Area Integrated Telephone Survey used the random-digit dial sampling framework of the National Immunization Survey to identify households with children <18 years of age in all 50 states and the District of Columbia.

National Survey of Children's Health

- One child in each household was randomly selected to be the focus of the survey. The survey respondent was an adult in the household identified as "the parent or guardian who lives in this household who knows the most about the health and health care of the child."
- Interviews conducted in English and Spanish were completed and data gathered on a total of 102353 children ages 0–17 years during 2003–2004.

Survey components

- child demographics
- health and functional status
- health insurance status
- health care access to and utilization
- medical home

Survey components

- early childhood (0-5)
- middle childhood and adolescence (6-17)
- family functioning
- parental health
- neighborhood characteristics
- family demographics

Response rates

- Nearly 69% of the households contacted for NSCH completed the 25-minute telephone interview. Individual response rates by state ranged from 49.6% to 64.4%, and 32 states accomplished response rates >55%.
- A total of 6035 interviews were conducted in Spanish, accounting for 5.9% of all completed interviews.

Measures

Learning disability (LD)

- Has a doctor, health professional, teacher, or school official ever told you [CHILD] has a learning disability?

Measures

Asthma and Diabetes

- Has a doctor or health professional ever told you that [CHILD] has any of the following conditions]?
- Asthma?
- Diabetes?

Measures

- Child's gender (male/female)
- Household education (<, = or > high school)
  - highest education attained by anyone in the household
- Household poverty – as % of Federal Poverty Level
  - (>100% to ≥ 400%)
- Household employment (yes/no)
  - was coded "yes" if anyone in the household was employed at least 50 out of the past 52 weeks

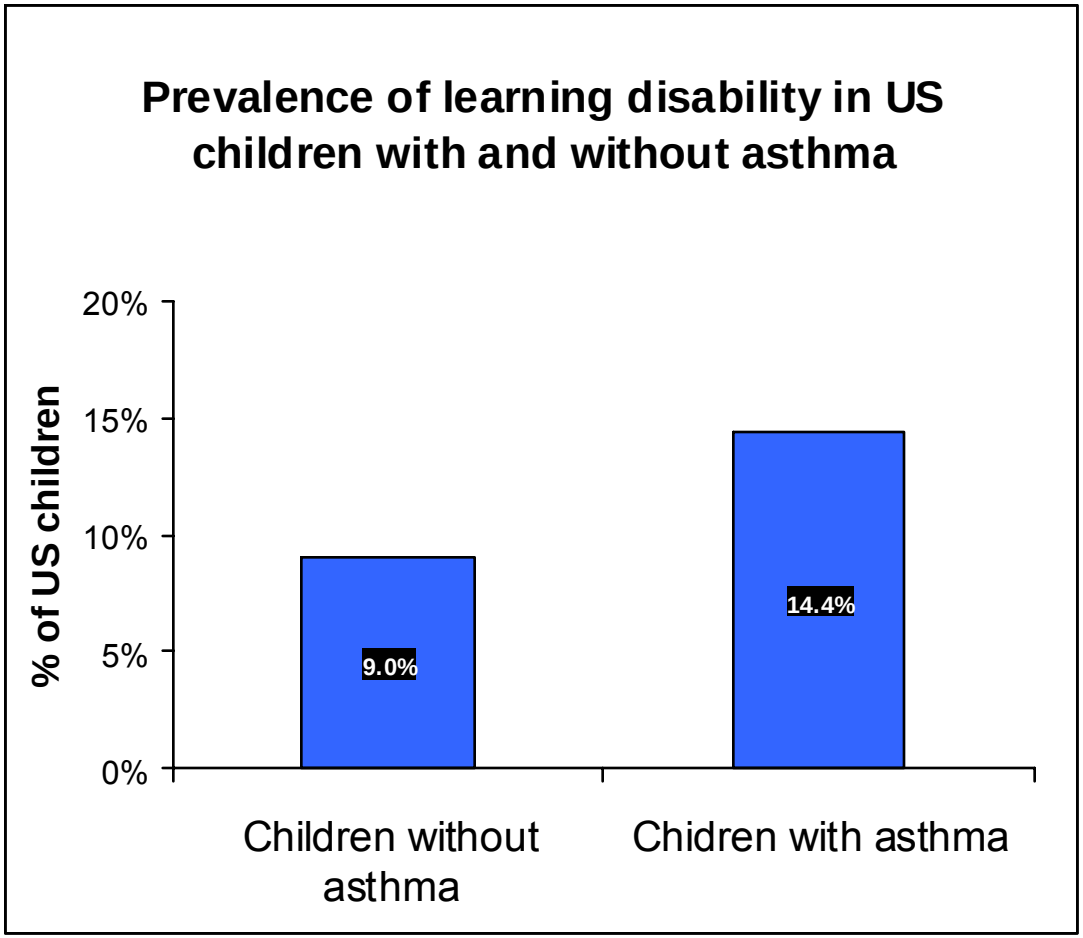
Measures

- Presence of a smoker in the household (yes/no)
  - coded as “yes” if anyone in the household used cigarettes, cigars or pipe tobacco
- family structure
  - two-parent (other than step) family,
  - two-parent step family,
  - single mother (no father present) and
  - other

Data Analysis

- Logistic regression
- Differences were considered significant at the .05 level (2-tailed test).
- SAS callable SUDAAN

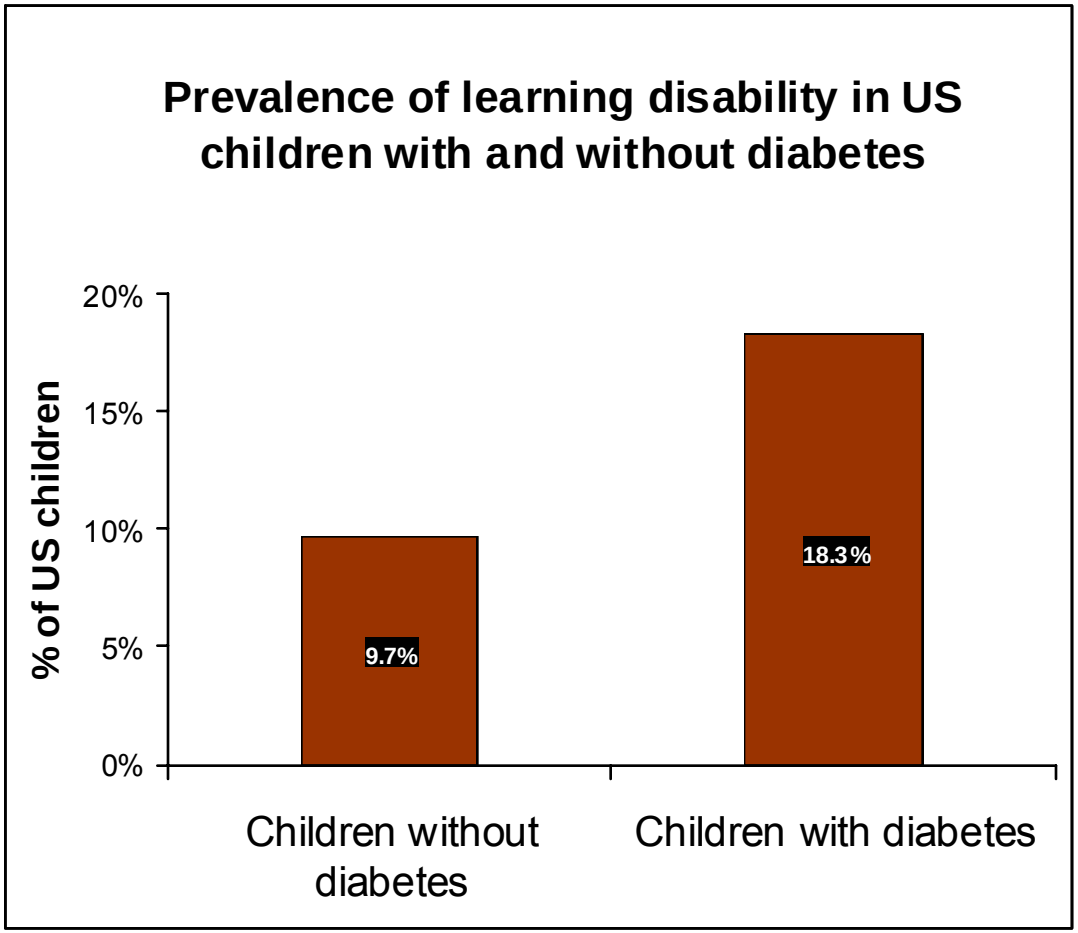
Results



OR=1.7

95% CI 1.5, 1.9

Results



OR=2.1

95% CI 1.4, 3.2

Results

- The odds of LD among children with asthma were OR=1.5 (95% CI 1.3, 1.7) compared to those without after adjusting for diabetes, age, gender, household education, poverty, smoking, and family structure.

Results

- Among children with diabetes, the odds of LD were OR=1.7 (95% CI 1.1, 2.9), compared to those without after adjusting for asthma, age, gender, household education, poverty, smoking, and family structure.

Study questions answered

- Prevalence of LD is higher in US children with asthma than in those without
- Prevalence of LD is higher in US children with diabetes than in those without
- These differences persist after adjusting for sociodemographic factors

Conclusion

- US children with asthma or diabetes are significantly more likely to have LD than children without asthma or diabetes, indicating that LD is a co-morbidity among US children with asthma and diabetes.

PUBLIC HEALTH IMPLICATION

- It is important to consider LD as co-existing condition in US children with asthma and diabetes.

Questions?

Thank you.