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Gender differences in severity of writing and reading disabilities ☆

Virginia W. Berninger [a,*], Kathleen H. Nielsen [a], Robert D. Abbott [a], Ellen Wijsman [b,c], Wendy Raskind [c,d]

[a] *Educational Psychology, University of Washington, United States*
[b] *Biostatistics, University of Washington, United States*
[c] *Medicine (Medical Genetics), University of Washington, United States*
[d] *Psychiatry and Behavioral Sciences, University of Washington, United States*

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Abstract

Gender differences in mean level of reading and writing skills were examined in 122 children (80 boys and 42 girls) and 200 adults (115 fathers and 85 mothers) who showed behavioral markers of dyslexia in a family genetics study. Gender differences were found in writing and replicated prior results for typically developing children: Boys and men were more impaired in handwriting and composing than were girls and women, but men, who were more impaired in those writing skills, were also more impaired in spelling than women. Men were more impaired than women in accuracy and rate of reading passages orally, but boys were not more impaired than girls on any of the reading measures. Males were consistently more impaired than females in orthographic skills, which may be the source of gender differences in writing, but not motor skills. Population-based studies that report gender differences in reading

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* Corresponding author. 322 Miller, Box 353600, University of Washington, Seattle, WA 98195-3600, United States. Fax: +1 206 616 6311.

E-mail address: vwb@u.washington.edu (V.W. Berninger).

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in children with dyslexia may be confounding reading and writing disorders—the latter being the true source of gender differences in both children and adults with dyslexia.

Keywords: Gender differences; Writing disability; Reading disability; Dyslexia; Family genetics study

Introduction

Population-based studies of gender differences

The controversy over whether boys are more likely than girls to have reading disabilities is unresolved. Most data offered to support positions in this debate are from population-based (epidemiological) studies.

Only one of these *population-based* studies reported evidence refuting gender differences in reading disability. Shaywitz, Shaywitz, Fletcher, and Escobar (1990) used a discrepancy definition (at least a 1.5 standard deviation between Full Scale WISC IQ [80 and above] and WJ Reading Cluster [based on real word reading and pseudoword reading] to identify the prevalence of boys and girls with reading disability in a sample of 445 children in grades 2 or 3 drawn from an epidemiological study in the state of Connecticut. Their results showed approximately comparable incidence of girls and boys with reading disability. A behavioral genetics study using a different research approach than population-based studies (Wadsworth, DeFries, Stevenson, Gilger, & Pennington, 1992) replicated the results of the Shaywitz et al. study.

Other population based studies have consistently reported gender differences in reading disability. Flannery, Liederman, Daly, and Schultz (2000) used a discrepancy definition (between Full Scale WISC IQ [80 and above] and WRAT Word Reading) in a prospective birth cohort sample of 32,223 children in the National Collaborative Perinatal Project when they were in first or second grade. Reading disabilities were more prevalent in boys than girls, even when race, attention, and activity levels were controlled. However, their measure of reading disability was based on a single measure of real word reading and did not include a test of phonological decoding (pseudoword reading), which has been shown to be critical in diagnosing reading disability (e.g., Morris et al., 1998; Stanovich, 1986; Wagner & Torgesen, 1987).

Katusic, Colligan, Barbaresi, Schaid, and Jacobsen (2001, 2005) used school and medical record review to study a prospective birth cohort near the Mayo Clinic in Rochester, Minnesota in a sample of 5718 children ages 5 to 19. They are the only group to examine gender differences separately for reading (Katusic et al., 2001) and for writing (Katusic, Barbaresi, Colligan, Weaver, & Jacobsen, 2005). They used four methods including IQ-achievement discrepancy and low achievement criteria to identify incidence of reading disability by age 19. One of these methods used a phonological decoding measure, which is appropriate for identifying reading disability. Although results for reading disability depended on method used, a higher incidence of males with reading disability was found with each method. They used three methods to identify the incidence of writing disability by age 19-regression based discrepancy, non-regression based discrepancy, and low achievement. Again, regardless of method used, a higher incidence of males with writing disability was found. The relative risk of males compared to females of having a writing disability ranged from 2.0 to 2.9.