

Reading Problems, Psychiatric Disorders, and Functional Impairment from Mid- to Late Adolescence

DAVID B. GOLDSTON, PH.D., ADAM WALSH, M.S.W.,
ELIZABETH MAYFIELD ARNOLD, PH.D., BETH REBOUSSIN, PH.D.,
STEPHANIE SERGENT DANIEL, PH.D., ALAATTIN ERKANLI, PH.D.,
DENNIS NUTTER, PH.D., ENITH HICKMAN, M.A., GUY PALMES, M.D.,
ERICA SNIDER, M.A., AND FRANK B. WOOD, PH.D.

ABSTRACT

Objective: To examine psychiatric morbidity and functional impairment of adolescents with and without poor reading skills during mid- to late adolescence. **Method:** The sample consisted of 188 adolescents, 94 with poor reading skills and 94 with typical reading skills, screened from a larger sample in the public schools at age 15. To assess psychiatric disorders, participants were assessed annually with the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Epidemiologic Version (up to 4.5 years; maximum age, 20 years). Functional impairment was assessed with the Child and Adolescent Functional Assessment Scale. **Results:** Adolescents with poor reading skills evidenced higher rates of current attention-deficit/hyperactivity, affective, and anxiety disorders, particularly social phobia and generalized anxiety disorder. Anxiety disorders but not affective disorders were related to reading status after controlling for attention-deficit/hyperactivity disorder. Adolescents with poor reading evidenced more functional impairment across multiple areas than youths with typical reading skills, even after considering the presence of comorbid attention-deficit/hyperactivity disorder. **Conclusions:** The increased psychiatric morbidity and functional impairment of adolescents with reading problems highlight the importance of developing interventions that help these youths address reading deficits and associated vulnerabilities during the last years of secondary school. *J. Am. Acad. Child Adolesc. Psychiatry*, 2007;46(1):25–32.

Key Words: longitudinal, reading, psychiatric morbidity, functional impairment.

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Drs. Goldston and Erkanli are with the Department of Psychiatry and Behavioral Sciences at Duke University School of Medicine, Durham, NC; Dr. Reboussin is with the Department of Public Health Sciences, Dr. Wood is with the Department of Neurology, and Drs. Arnold, Daniel, Nutter, and Palmes, Mr. Walsh, Ms. Snider, and Ms. Hickman are affiliated with the Department of Psychiatry and Behavioral Medicine, Wake Forest University School of Medicine, Winston-Salem, NC; Dr. Nutter is now affiliated with the Northeast Georgia Medical Center, Gainesville; and Ms. Hickman is employed by the U.S. Department of Health and Human Services, Washington, DC.

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Correspondence to Dr. David B. Goldston, Duke Child and Family Study Center, 718 Rutherford Street, DUMC 3527, Durham, NC 27710; e-mail: david.goldston@duke.edu.

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Mid- to late adolescence is a period of transition that may be particularly daunting for youths who have reading difficulties (Lyon, 1998; Maughan, 1995). For example, adolescents with reading difficulties often find academic demands frustrating (McNulty, 2003) because reading is central to much of their coursework (Lyon, 1998). Given years of frustration in school, adolescents with poor reading often have lowered self-esteem and decreased motivation to learn (Lyon, 1998) and experience embarrassment and anxiety in situations in which they are required to read or write (Maughan, 1995). Not unsurprisingly, they drop out of school at higher rates than their peers without reading problems (Daniel et al., in press), may be less inclined to pursue postsecondary school education or training, and often have fewer options as they plan for the future (Lyon, 1998).

Despite these challenges, there has been relatively little controlled, prospective, repeated-assessments research examining the psychiatric morbidity and functional impairment associated with poor reading ability from mid- to late adolescence. For example, cross-sectional studies have indicated higher rates of separation anxiety (Livingston, 1990) and overanxious disorder (Willcutt and Pennington, 2000b) for younger children with reading problems relative to comparison youths. In an epidemiological study of 9- to 15-year-olds, higher rates of anxiety disorders were associated with literacy difficulties, defined as poorer-than-expected single-word reading or spelling (Carroll et al., 2005). In a longitudinal study, youths with various types of language impairment as a group had higher rates of anxiety disorders, in particular social phobia, by late adolescence than peers without such difficulties (Beitchman et al., 2001b).

Depressive disorders also have been associated with reading disabilities among younger children in clinical settings (Kashani et al., 1982; Livingston, 1990), but a relationship between depressive disorders and literacy difficulties was not evident in an epidemiological study (Carroll et al., 2005). Moreover, in a study of primarily younger youths, significant depressive symptoms were present mostly among girls with reading disabilities (Willcutt and Pennington, 2000b). Little is known about the risk of depressive disorders among poor readers relative to typical readers during mid- to late adolescence.

In epidemiological studies, conduct and oppositional disorders were associated with literacy difficulties (Carroll et al., 2005), and reading problems at age 9 predicted later conduct disorder (Williams and McGee, 1994). Such differences were not found, however, in a clinical sample (Livingston, 1990) or between co-twins discordant for reading problems (Willcutt and Pennington, 2000b). Language impairment among 19-year-olds (primarily males) was associated with higher rates of antisocial personality disorder, and substance use disorders were associated with higher rates of mathematics and spelling disabilities but not reading disabilities (Beitchman et al., 2001a,b). Maughan et al. (1996) similarly failed to find an association between reading problems during childhood and alcoholism in adulthood.

The link between reading difficulties and attention-deficit/hyperactivity disorder (ADHD) is well estab-

lished (Hinshaw, 1992). Nonetheless, adolescents diagnosed with ADHD as children often do not evidence the full ADHD syndrome as they get older (Biederman et al., 2000), so it is not clear whether reading and ADHD are related in adolescence in the same way that they are for younger children. Moreover, because ADHD is associated with multiple psychiatric comorbidities (Biederman et al., 1996), it is not always clear whether non-ADHD psychiatric comorbidities among youths with reading problems are specifically related to reading difficulties or to the presence of ADHD (Carroll et al., 2005). Results from two cross-sectional studies, one of preadolescents and one of youths 9 to 15 years of age, indicated that externalizing behavioral problems with learning difficulties may have an association with co-occurring ADHD symptoms (Carroll et al., 2005; Willcutt and Pennington, 2000a).

Finally, it has been suggested that youths and young adults with reading disabilities may experience functional impairment in a number of different life areas (Maughan, 1995), but few, if any, studies of poor and typical readers have examined functional impairment across multiple life areas using standardized and psychometrically sound assessment instruments. In this regard, it is important to note that even youths not meeting diagnostic criteria for psychiatric disorders can show evidence of impairment (Angold et al., 1999). Moreover, to the extent that reading status is associated with functional impairment, it is not clear whether the impairment is attributable to the reading problems *per se* or to the presence of comorbid ADHD.

This study was designed to examine whether psychiatric morbidity (i.e., rates of ADHD, affective disorders, anxiety disorders, conduct and oppositional defiant disorder, and substance use disorders) and functional impairment differed between adolescents with poor reading and their peers with typical reading skills during mid- to late adolescence. To the extent that there is greater non-ADHD psychiatric morbidity and functional impairment among adolescents with reading problems, we were interested in determining the degree to which these difficulties were attributable to co-occurring ADHD. We also were interested in whether the risk of psychiatric disorders and functional impairment evidenced by poor and typical readers differed as a function of increasing age, gender, or ethnicity.

This article is the primary report from a recently completed longitudinal study of adolescents with and

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