Age 31 Mental Health Outcomes of Childhood Language and Speech Disorders

Joseph H. Beitchman, MD, E.B. Brownlie, PhD, Lin Bao, BA

Objective: Language disorders are associated with emotional and behavioral problems in childhood and adolescence. Although clinical studies with small samples suggest that psychosocial difficulties continue into adulthood, adult mental health outcomes of childhood language disorders are not well known. The objective of this prospective longitudinal study is to determine whether the age 31 mental health outcomes of individuals who had childhood language disorders differ from the outcomes of typically developing controls. **Method:** A 26-year cohort study followed up children with language or speech disorders from age 5 to age 31. The children were selected from a 1-in-3 random sample of 5-year-olds using a 3-stage screening and assessment process. A control group matched by sex, age, and classroom or school was also selected. Diagnoses were assigned with the Composite International Diagnostic Interview with the additional criterion that Global Assessment of Functioning scores indicated at least mild impairment. Dimensional psychosocial self-report measures were also administered. **Results:** Rates of diagnosis at age 31 years were equivalent between participants who had childhood language disorders and controls, with and without multiple imputation to estimate missing outcomes. Differences in rates of affective and substance use disorders could not be ruled out because of attrition in the cohort with language disorders, who were less likely to participate at age 31. Psychosocial scores for both cohorts were in the normal range. The cohort with language disorders had poorer self-rated physical health than controls. **Conclusion:** Mild/moderate language disorders may not have significant long-term mental health consequences in early adulthood. J. Am. Acad. Child Adolesc. Psychiatry, 2014;53(10):1102–1110. **Key Words:** language disorder, longitudinal, adult outcomes, speech disorders, physical health

There is substantial overlap between childhood language difficulties and emotional/behavioral problems.[1-4] Rates of co-occurring language disorders in children's mental health and youth forensic settings approach 50%.[5,6] Conversely, children and adolescents receiving speech/language services often have concomitant emotional, behavioral, or social difficulties.[4,7,8] Findings from prospective community studies confirm the increased risk for psychiatric diagnoses and psychosocial difficulties among youth with language disorders.[1-3,9,10]

This article is discussed in an editorial by Dr. Claudio O. Toppelberg on page 1050.

Clinical guidance is available at the end of this article.

Supplemental material cited in this article is available online.

Language disorder (LD) includes difficulties with expressive and/or receptive grammar, vocabulary, or discourse; the *DSM-5* diagnosis is language disorder.[11] Speech disorders include difficulties with articulation, speech sounds, fluency, or voice; corresponding *DSM-5* diagnoses are speech sound disorder, childhood onset fluency disorder, and voice disorder. This study examines the age 31 mental health outcomes of children with communication disorders in comparison with typically developing controls.

In contrast to the extensive literature on emotional/behavioral correlates of LD in childhood and adolescence, adult mental health outcomes are largely unknown. Clinically, accurate information on prognosis is important for youth with communication disorders and their families. Theoretically, examining comorbidities across developmental contexts can inform our understandings of how communication relates to psychosocial functioning.

A few studies have reported mental health difficulties, psychosocial impairment, social difficulties, and reduced social participation in adulthood, consistent with child and adolescent findings.[12-19] However, these studies have methodological problems including small sample sizes, retrospective designs, and measurement limitations. One prospective community study reported poorer age 34 mental health outcomes of childhood LD. However, mental health was defined by constructs including perceived control and life satisfaction, limiting comparability with related research.[16] Because youth with complex problems may be more likely to be referred for treatment, studies using referred samples may overestimate the co-occurrence of mental health and language disorders. Prospective longitudinal studies following nonreferred community samples are essential to avoid referral bias.

Given the high psychiatric comorbidity of LD in childhood and adolescence, continued psychosocial vulnerability might be expected. First, LD persists into adulthood. Three-fourths of late adolescents with childhood LD continued to meet criteria in late adolescence and to lag in vocabulary growth.[20,21] Second, correlates and sequelae of LD may maintain vulnerability. Poor academic achievement and continuing communication difficulties limit educational participation and decrease vocational opportunities. Attained education is associated with employment, income, and physical and mental health; low socioeconomic status (SES) and associated disadvantage may convey additional risk for adverse outcomes.[22,23] Poorer linguistic environments resulting from limited parental resources and/or education, including decreased quantity and quality of child-directed speech, may contribute to the development of LD.[24-26] In addition, social difficulties associated with LD may have a negative impact on mental health.[7,8] Third, factors predicting resilience after adolescence such as academic achievement, financial resources, and self-perceived competence are likely to be less developed in individuals with LD because of ongoing academic difficulties and other areas of disadvantage.[27-29] Adult mental health outcomes of speech disorders are also largely unknown. Only 1 longitudinal study has reported psychosocial outcomes in a prospectively identified sample with childhood speech disorders; however, mental health outcomes were not reported.[30,31]

This article reports on age 31 mental health outcomes of the Ottawa Language Study, a 5-wave prospective longitudinal study. Participants with LD at age 5 years showed higher rates of psychiatric disorders at ages 5, 12, and 19[1,3,9]; poorer academics; elevated delinquency symptoms; and difficulties with social and adaptive functioning.[28,32,33] In contrast, individuals with speech disorders without LD resembled controls by late childhood.[3,9,28,34] Accordingly, participants with LD with or without co-occurring speech disorders (cohort with LD) were analyzed separately from participants with speech disorders only (SD-only cohort). We hypothesized that the cohort with LD would have poorer mental health outcomes than controls at age 31 years. We compared rates of psychiatric disorders and scores on dimensional measures, which may reflect subtler differences in psychosocial outcomes.

METHOD

Participants

Wave 1 Sample. In 1982, a 1-in-3 sample of English-speaking kindergarten children in the Ottawa–Carlton region of Canada (n = 1,655) was screened for language and speech disorders. The 301 children who failed the screening were assessed by speech–language pathologists, and 180 were diagnosed with a communication disorder; parental consent for psychosocial assessment was obtained for 142. A control group, matched on age, sex, and school (n = 142) was selected from those who passed the initial screening (further methodological information is available elsewhere).[35] The 284 children who constituted the wave 1 sample were reassessed at ages 12, 19, 25, and 31 years; retention rates were 86%, 91%, 85%, and 80%, respectively. The sample is not ethnically diverse due to local demographics in the initial wave; at wave 5, 91.5% identified their ethnicity as Caucasian, European, or Canadian.

Ethical approval was obtained from the research ethics boards of the Royal Ottawa Hospital (wave 1), Clarke Institute of Psychiatry (waves 2 and 3), Hospital for Sick Children (wave 4), and Centre for Addiction and Mental Health (wave 5).

Definitions of Language and Speech Disorders. LD was defined as any 1 of the following: 1 SD below the mean on the Test of Language Development (TOLD)[36] Spoken Language Quotient (SLQ) or Peabody Picture Vocabulary Test (PPVT)[37]; 2 SD below the mean on a language subtest of the TOLD; or 2 SD below the mean on both Content and Sequence subtests of the Goldman-Fristoe-Woodcock Test of Auditory Memory (GFW).[38] Of the 103 participants who met criteria for LD, 45 met 1 criterion only: PPVT (13), TOLD SLQ (24), TOLD subtest (1), GFW (7); 58 met 2 or more criteria. Speech disorders were defined as 2 SD below the mean on the TOLD Word Articulation or Word Discrimination subscales or clinical diagnosis of voice disorder, stuttering, or dysarthria. Exclusionary criteria were not