

1. Developmental Dyscalculia

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Developmental dyscalculia is a specific learning disability affecting the acquisition of arithmetic skills. The prevalence of this cognitive handicap in school-age children is 3-7%, a figure found in countries as diverse as the United States, England, Germany, India and Israel. This prevalence is similar to that of other neurocognitive disorders such as dyslexia and ADHD but, unlike them, is as common in girls as in boys. Although dyscalculia can manifest itself as an isolated learning disability, comorbidity with ADHD and dyslexia is common, occurring in 15-25% of affected children. Dyscalculia is frequently encountered in neurological disorders such as developmental language syndromes, epilepsy, neurofibromatosis, Fragile X syndrome and Turner's syndrome.

Dyscalculia appears to be a persisting learning disability although its natural history has yet to be confirmed in different countries and cultures. It should be emphasized that the acquisition of learning skills evolves over a variable spectrum of time, so that a delay in achieving competence in arithmetic does not necessarily indicate dyscalculia. Indeed, difficulties in arithmetic during kindergarten or first grade may merely reflect variations in normal development. Moreover, at this age, children with arithmetic problems can show considerable improvement in mastering counting procedures and fact retrieval skills. However, when older elementary school children with dyscalculia were prospectively followed and re-examined in 8th and 11th grades, their prognosis was not favorable: 95% achieved scores falling in the lowest quartile for their school class and 40% in the lowest 5th percentile. Thus, dyscalculia diagnosed in late elementary school is a persistent learning disability in almost half of affected individuals. Factors associated with persistence of dyscalculia are severity of the arithmetic disorder, inattention and a relatively low, albeit normal IQ. Socio-economic status, gender and co-occurrence of dyslexia were not associated with its persistence. It was disappointing to find that neither the extent nor types of remedial educational interventions received altered the outcome of dyscalculia. The consequences of dyscalculia and its impact on education, employment and psychological well-being of affected individuals are yet to be determined.

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