

ABSTRACT

Svensson, I. (2003). *Phonological dyslexia: Cognitive, behavioural and hereditary aspects*. Department of Psychology, Göteborg University, Sweden.

This thesis investigates characteristic features of dyslexia. A theoretical approach to the concept was introduced to enable the disentanglement of manifest, cognitive and biological levels of analysis. The aim of **Study I** was to investigate the prevalence of dyslexia in a five-generation family. The prevalence is highly dependent on the selection of phenotypes which is also discussed in the paper. Furthermore, a linkage analysis has been carried out in an attempt to reveal a specific genetic pattern of dyslexia. The results showed that nearly 40 % were regarded as dyslexic, based on a phonological definition. There were significant differences in all respects where the unaffected outperformed the affected except in reading and listening comprehension, years in school and non-verbal ability. The linkage analysis showed no significant concordance to any regions on a chromosome. However, suggestive QTL linkage was found on a region in chromosome 6 for spelling and verbal short term memory. For the categorical analysis, a suggestive linkage was found on a region in chromosome 13. Tests such as non-word reading, digit span, spelling and a self-reported history of reading and writing problems seem to give relevant phenotypes for dyslexia. To further investigate the relevance of phonological skills as a core factor of dyslexia the aim of **Study II** was to examine the persistency of phonological deficiencies over a 10-year period. Another aim was to investigate which definition of dyslexia provided the most stable results. Four definitions were used; pure phonological, a phonological definition including IQ, a word recognition definition and a word recognition definition including IQ. The target group was 40 young adults with a history of reading and writing difficulties. There was a high correlation between phonological ability using a non-word reading test in grades 3 and 12. Furthermore, a pure phonological definition of dyslexia exhibited the most stable results. Thus, these findings indicate that non-word reading is a stable test of dyslexia and that including a measure of IQ does not contribute significantly in the diagnostic procedure. On a manifest level, many factors might influence the ability of reading and writing. Complexity of the distinction between general reading and writing disabilities and dyslexia is illustrated by studies among inmates in juvenile institutions.

The main purpose of **Study III** was to estimate the prevalence of reading and writing disabilities among inmates in juvenile institutions. The investigation also analyzed differences between immigrants and Swedish pupils. More than 70% showed some problems in reading and spelling. Moreover, the results showed that comprehension ability among immigrant boys was lower than among Swedish boys despite the same level of word reading skill. In **Study IV** the aim was to go one step further. The overall aim was to investigate the character of these pupils' reading and writing difficulties and to establish how many of them suffered from dyslexia. Is it dyslexia that causes these pupils' problems with written language, or are the problems due to other shortcomings. Dyslexia in the sense of decoding problems related to phonological deficiencies was observed in 11% of the cases. Most of the pupils with literacy difficulties had a background, from infancy and onwards, characterized by severe social and emotional problems, interfering with positive experiences of literacy and the literate culture. From this perspective, it is unlikely that dyslexia is a determining factor of delinquent behaviour. The thesis tries to elucidate some aspects of dyslexia that might be helpful in the overall process of categorizing different subtypes of reading and writing disabilities.

Keywords: Dyslexia, phonology, reading and writing disabilities, heredity, linkage, juvenile delinquents

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