

Learning Disabilities

Opportunities and challenges in Oman

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صعوبات التعلم

الفرص والتحديات في عمان

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LEARNING DISABILITIES (LDs) REFER TO A group of heterogeneous disorders which may affect the acquisition, organisation, retention, understanding or use of verbal or nonverbal information.¹ The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders introduced a new term, specific learning disorder, as a single diagnosis to describe all of these conditions.² A specific learning disorder is defined as a neurodevelopmental disorder of biological origin which manifests in learning difficulties and problems in acquiring age-appropriate academic skills during the early school years.² Learning difficulties can manifest in any of the following essential skills: reading, written expression or mathematical calculations. The difficulties should last for at least six months and should not be attributable to any of the following causes: intellectual disabilities, a lack of visual or auditory acuity and other mental or neurological problems.² Additionally, these learning problems should not be the result of psychological adversity, lack of proficiency in the language of academic instruction or inadequate educational instruction.² The learning difficulties should cause significant interference with academic/occupational performance or with activities of daily living.² Despite what the term might suggest, individuals with LDs have only specific learning difficulties but maintain an average or above average intelligence quotient.³

The main causative factor for LDs is presumed to be neurobiological in origin, due to an as-yet-unidentified brain pathology.^{3,4} Additionally, both hereditary and environmental factors have been implicated.^{3,5} It is possible that these aetiological factors intertwine to trigger the development of LDs. Generally, LDs affect approximately 5% of school-aged children globally.⁶ However, some researchers have argued that the true prevalence could be as high as 15–20%.^{3,7} Reportedly, 4.9% of Canadian children

aged 6–15 years were found to have an LD; this prevalence varied across the age spectrum, from 1.6% among 6-year-olds to 7.2% among 10-year-olds.⁸ Data from public schools in the USA showed an estimated LD prevalence of 5% among school-aged children, with 2.4 million students found to have LDs.⁹ Dyslexia, which affects a complex range of abilities related to reading and language, represents the most common LD, as 80% of people with LDs are dyslexic.^{5,10,11} Other common types of LDs include dysgraphia, which affects writing abilities, dyscalculia, which affects the application of mathematical operations, and visual-spatial organisation problems.^{3,11} Nonverbal LDs are another type of learning difficulty whereby individuals demonstrate adequate verbal expression, vocabulary or reading skills, but have difficulties with certain nonverbal activities, such as problem-solving, visual-spatial tasks and reading body language or recognising social cues.³

The effects of LDs can persist during adulthood, as reading, writing and mathematical skills are usually essential to perform routine daily activities. Affected individuals may also face limited opportunities for employment. Furthermore, the frequent co-existence of two or more LDs within the same individual makes the picture even more complex; in the USA, 30% of students with a primary LD were also found to have a secondary disability, while 7% had two or three additional disabilities, such as speech/language impairments or emotional disturbance.⁹ Furthermore, other research has also shown that LDs are usually associated with other comorbidities including attention deficit hyperactivity disorder, oppositional defiant disorder, obsessive-compulsive disorder, anxiety and depression.¹²

An LD diagnosis should be confirmed by individually administered standardised achievement measures and comprehensive clinical assessment. In

view of the difficulties in diagnosing children with LDs, a three-level diagnostic approach has been advocated.¹³ The first level is the behavioural level, at which the main players are the parents and the school teachers of an affected child; this is the most important step, because it is here that an appropriate intervention can be initiated and followed-up. The second level is the neuro-behavioural level, whereby learning problems are analysed using appropriate neurocognitive tests and an attempt can be made at a diagnosis. The third level refers to the neurobiological basis of LDs; specific questions about the exact cause of the LD can be addressed by performing sophisticated investigations such as genetic marker analyses, neurophysiological tests and neuroimaging.¹³ Searching for the neurobiological underpinning of a particular LD may potentially rule out other diagnoses or comorbidities.

The mainstay of LD treatment is remedial intervention—that is, utilising behavioural and medical techniques to improve the functioning of LD-affected individuals. Remediation is usually performed by educators specialising in dealing with children with special needs or talents. The aim of remediation is to address a specific LD by providing intensive and individualised instruction and allowing the student extra time to practice certain skills. There have been calls to implement intensive empirically-based interventions and make them easily available to all children in general education.⁴ An integral part of remediation is the early identification of at-risk children so that timely interventions can follow suit. The role of the family physician comes to the forefront with regards to this issue—every interaction with school-aged children and their families should be exploited to determine the child's educational progress and any early signs of an LD. Teachers are another potential avenue for early identification. In the USA, yearly reading assessments for kindergarten children have resulted in the earlier detection of LDs.⁴ Several longitudinal studies have shown that preschool diagnosis and early interventions have the net outcome of reducing the severity of LDs; indeed, early interventions have been shown to have a durable and lasting effect on the school performance of LD-affected children.^{4,14} Conversely, Shaywitz *et al.* observed that 'late' interventions bore no beneficial effects for children with persistent reading disabilities.¹⁵

Oman has witnessed a drastic improvement in its educational system during the last four decades.¹⁶ The number of schools rose from three in 1970 to 1,052 in 2008; the number of teachers similarly increased from 30 in 1970 to 41,988 in 2008.^{16,17} In 1998, comprehensive educational reforms were carried out to keep

up with new trends in education.¹⁷ At that time, a new curriculum was implemented, focusing on practical education, real-life experiences and the acquisition of essential life-long skills. In addition, teaching methods became more student-centred and new assessment methods were introduced.¹⁷ Unfortunately, very little research has yet been published regarding LD prevalence rates in Oman or other Arab countries.¹⁸ Nevertheless, specialised education for students with LDs has received attention; the Ministry of Education (MOE) established a Special Education section in 1974 which later became a department within the MOE.¹⁷ Furthermore, the MOE adopted the concept of inclusive education to provide opportunities for all learners, regardless of differences in their learning abilities in mainstream schools.¹⁷ In 2001, the MOE initiated a pilot project to provide support to students with LDs.¹⁶ The project has since been very successful; from the first two schools in 2001, it had expanded to include 1,471 schools in 2015.¹⁷ As part of this project, a special education teacher is assigned to each participating school to identify students with LDs in grades 1–4. Subsequently, the teacher will work with these students both in the general classrooms and in individualised classes to help them overcome their learning difficulties, primarily with regards to their reading and mathematical skills.¹⁶

Although the establishment of these initiatives in Oman seems promising, there are several challenges which need to be addressed.¹⁹ There is a dearth of qualified special education teachers catering to the needs of children with special needs and talents. Training teachers in this field has been difficult; however, the availability of local postgraduate training since 2006 will hopefully provide more opportunities for training. Similarly, there are few qualified clinical psychologists and developmental paediatricians and no tertiary care centres which are adequately equipped to manage children with LDs. There are also few validated Arabic assessment and screening tools which can be used for children with suspected LDs.¹⁸ There is a need to establish an appropriate system for monitoring and evaluating current strategies to identify areas for improvement. Integration of care by different service providers, such as ministries and non-governmental agencies, is also required. Finally, efforts should be continued to increase the level of awareness of the community and to educate parents about LDs and the available services in Oman. In view of the recent progress made in the fields of genetics and neuroimaging, there is great hope that improved treatment strategies, interventions and the remedial services for individuals with LDs will be found in the near future.^{20,21} Moreover, prevention of LDs may be

possible with a better understanding of aetiological factors at the neurobiological and social levels. This will hopefully allow us to identify children at risk of LDs prior to their manifestation.

Learning disabilities are not a prescription for failure. With the right kinds of instruction, guidance and support, there are no limits to what individuals with LD can achieve. Sheldon H. Horowitz, Director of Learning Disability Resources, National Center for Learning Disabilities.⁹

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