

# Clinicians and dyslexia—a computer-based assessment of one of the key cognitive skills involved in drug administration

Lynne J. Millward<sup>a,\*</sup>, Karen Bryan<sup>b</sup>, John Everatt<sup>c</sup>, Rachel Collins<sup>c</sup>

<sup>a</sup>Department of Psychology, University of Surrey, Guildford, Surrey GU2 5HX, UK

<sup>b</sup>European Institute of Health and Medical Sciences, University of Surrey, Guildford, UK

<sup>c</sup>Department of Psychology, University of Surrey, Guildford, Surrey, UK

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## Abstract

**Aims:** This research investigates the relationship between dyslexia traits and nurse performance on a laboratory task designed to assess one of the key cognitive skills involved in drug administration. The potential moderating role of perceived performance control was also assessed, based on previous work demonstrating the importance of self-belief as a facilitator of vocational success.

**Background:** Dyslexia within the health care professions has been the subject of wide and emotionally charged debate but has not yet been scientifically examined. Those who fear clinicians with dyslexia do so because of a presumed or potential risk to patient health and safety posed by dyslexia-induced performance error (e.g. problems with drug administration).

**Design, sample and methods:** 46 nurses (40 student nurses and 6 qualified nurses) volunteered to complete a battery of computerised tasks assessing for dyslexia traits (using four accuracy tasks measuring different types of literacy skill), a paired association task designed to measure one of the key cognitive skills involved in drug administration) and a self-report questionnaire (Learning Styles Questionnaire, self-reported reading difficulty and a history of educational support, perceived control over performance). The performance criterion measure was constructed after detailed job analysis (involving analysis of official documentation, in-depth interviews and field observation across a variety of clinical settings) and involved matching drug names to patient names and vice versa.

**Results:** The results showed that the dyslexia indicators (objective and self-report) were significantly correlated with performance on the paired association task. Contrary to expectation however, the perceived control variable was not associated with performance.

**Conclusion:** The findings provide tentative support for the idea that some tasks might be problematic for the clinician with dyslexia. Taken in isolation however, it would be inappropriate to conclude that this will necessarily translate into true performance errors without taking into consideration the entire performance context. Suggestions are made for replicating and extending the study to provide a more solid and constructive basis for intervention (e.g. support measures, a built-in checking process).

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\*Corresponding author.

E-mail address: [l.purvis@surrey.ac.uk](mailto:l.purvis@surrey.ac.uk) (L.J. Millward).

## 1. Clinicians and dyslexia

With, potentially, as many as one in ten people in Britain diagnosed with dyslexia, the issue of how this might impact on performance at work is becoming increasingly of interest (Riddick, 1995). This interest has recently also become quite central to considerations of safe clinical practice (Duffin, 2001; Shepherd, 2002; Watkinson, 2002; Wiles, 2001a, b; Wright, 2000).

Dyslexia has been globally described as a ‘reading disorder’ (Davidson and Neale, 2001; Reber and Reber, 2001). Some define dyslexia more broadly as a difficulty with language in general, as well as problems with space, time and numbers (Miles and Gilroy, 1996). Whilst the *performance implications* of dyslexia-induced reading or language difficulties are unclear, folk theories abound of the potential risk to patients posed by clinicians with dyslexia on critical language sensitive tasks like drug administration. Worries in particular stem from the assumption that the clinician with dyslexia has the “potential to confuse medical terminology or drug names” (Wright, 2000, p. 39). Indeed, evidence to suggest that student nurses with dyslexia may experience difficulties with “mentally transcribing verbal instructions and accurately reading and interpreting information at speed” (Wright, 2000, p. 39) add some weight to these concerns.

Such worries are also fuelled by anecdotal horror stories of near-miss fatalities attributed to dyslexia-induced error (Duffin, 2001; Watkinson, 2002). Paul Lewis of the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (now the Nursing and Midwifery Council, 1999, 2002a–c) reported on a nurse that he had heard of, who used the colours and sizes of bottles as the basis for matching medication to patients. He argues that this kind of practise is unreliable putting patients at serious risk.

The possibly large incidence of dyslexia amongst nurses (though no definitive figures are available) (Wright, 2000) combined with the fact that nurses comprise almost 80% of the UK clinician work force (Jasper, 2002), has put this particular clinician group under considerable scrutiny on this issue. However, in rebuttal to the aforementioned fears are positive accounts of the experiences of nursing students who have successfully fought with their dyslexia to gain their qualifications and who are now competent practitioners. Such accounts maintain that with appropriate support, dyslexia is neither a risk, nor a hurdle to effective nursing practice (Sheehan and Nganasurian, 1994; Shepherd, 2002; Cobley and Parry’s, 1997). Some however maintain that it is not practical or cost-effective to provide the required level of support ‘in the field’ (e.g. Shellenbarger, 1993). Such arguments also continue along the lines that a practising nurse is by definition a professional, fundamental to which is the possession of

the ability required for ‘lawful, safe and effective practice without direct supervision’ (clause 6.2 of The Nursing and Midwifery Council Code of Professional Conduct, 2002). On this basis, Wright (2000) reported that as many as 24% of respondents from within the health care profession, considered dyslexia a *real practical risk*.

To date however there is *no scientific evidence* to suggest that nurses with dyslexia are *not* safe to practise (Wright, 2000). Given the particular salience of the drug administration task as one that could be especially dyslexia-sensitive (thereby putting patient safety in jeopardy), this paper reports on a small exploratory study looking systematically at the relationship between dyslexia traits and nurse performance on a laboratory task designed to assess one of the key cognitive skills involved in drug administration. Whilst this task is arguably one that is not ecologically meaningful as a simulation of drug administration in the field, it was specifically designed to investigate the cognitive sensitivity of the task to performance variation in association with dyslexia traits.

## 2. Adult dyslexia and its performance implications

There is said to be two broad types of dyslexia induced reading difficulty: developmental dyslexia (with no known neurological basis) and acquired dyslexia (resulting from neurological impairment). Developmental dyslexia is more common than acquired dyslexia and can, itself, also be divided into two forms: *dyseidetic* (read phonetically, unable to read whole words) and *dysphonic* (difficulty reading novel or irregular words, reliance on whole word identification (Davidson and Neale, 2001). However, individuals will usually present with particular patterns of abilities and difficulties.

Research and advice by authors working within the field of adult dyslexia originates from two different streams, one looking at the primary problems of dyslexia (literacy, spelling, sequencing problems etc.) and the other looking at the secondary problems arising from having to live and cope with dyslexia (Gerber et al., 1992). It is well established that, once diagnosed, the primary problems of dyslexia can be readily overcome with effective training, the use of carefully designed technological aids, and the cultivation of particular types of coping strategies (Fitzgibbon and O’Connor, 2002).

Secondary and potentially more complex problems can arise however from frustration with difficulties and in particular, others’ reactions to these (e.g. low self-confidence, performance anxiety, stress induced by perceived stigma). Secondary problems can inhibit performance by inclining people with dyslexia to mask

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