How do Medical Doctors with Specific Learning Difficulties (SpLD) Cope in a Clinical Setting?

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<u>ABSTRACT</u>

There have been a small number of studies conducted with qualified nurses and nursing/medical students with Specific Learning Difficulties (SpLD), showing that SpLD may affect those in the medical profession in relation to clinical tasks, career choices and success. There has been an increase in the number of medical students with SpLD (Gibson and Leinster, 2011) entering the medical profession, yet there is very limited research available regarding doctors who have SpLD.

This research aimed to explore how doctors with SpLD are coping in the workplace, the coping strategies used, any perceived possible areas of strength or weakness, and any practices for ensuring patient safety. It also explored the perceptions held by doctors with SpLD about the impact this has on their working life, and factors that could influence their career choice and success. These areas were also explored in relation to medical students.

A mixed methods approach was used for this project, consisting of 3 studies incorporating quantitative questionnaires with 129 doctors (Study 1) and 74 medical students (Study 3) with and without SpLD and qualitative telephone interviews with 11 doctors with SpLD (Study 2).

The results showed that the main difficulties participants with SpLD experienced were in relation to written work and associated tasks, such as spelling. These were often overcome through the use of coping strategies. The doctors rated their clinical skills highly and described strengths such as communication skills and empathy. The doctors were selective when deciding who to disclose their SpLD to.

In conclusion this project showed that SpLD do have a number of effects on doctors in the workplace. Through the implementation of coping strategies and support doctors were able to successfully overcome any difficulties experienced, indicating that having SpLD did not prevent individuals from becoming successful doctors.

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PRESENTATION OF THESIS

This thesis explores the ways in which Specific Learning Difficulties (SpLD), such as dyslexia, can affect medical doctors when in employment in the UK and how they may cope with such effects. The first 3 chapters are concentrated on giving background information and exploring the literature and previous research conducted in this area. An introduction is given regarding the models of disability, SpLD generally and dyslexia specifically and the policies that surround these in employment and education in relation to medical students and doctors. A literature review has been conducted to give a wider insight to previous research conducted in the area of health professionals with SpLD and a structured review has been conducted showing the need for further research.

The next 5 chapters then progress on to detail what this project hoped to achieve and how it was going to do this, the studies conducted for this thesis and the research methods used. The aim of this project was to collect information from medical doctors in the UK via a questionnaire (Study 1) followed by semi-structured interviews with medical doctors with SpLD (Study 2). In order to do this a questionnaire had to be developed so pilot interviews were conducted with General Practitioners, with the findings from these interviews aiding in the design of a questionnaire which was then piloted. A further questionnaire study was subsequently completed with medical students (Study 3) as initial results from Study 2 suggested that they were potentially a particularly vulnerable and important group in terms of the overall impacts on having SpLD as a doctor.

The final chapter discusses the overall results of this project and the significance of these results for current and future doctors, provides suggestions for further research and outlines final conclusions.

For the purposes of this project, the term 'Specific Learning Difficulties' (SpLD) is being used to describe a person who has a specific difficulty with cognitive functioning affecting their ability to learn. Therefore this will include someone with dyslexia if they have difficulties with written language, dyscalculia if they have difficulties with numbers, dyspraxia if they have weaknesses in co-ordination and organisation, or a person with attention deficit hyperactivity disorder (ADHD) who has weaknesses with attention and concentration.

CHAPTER 1

INTRODUCTION

This chapter provides an overview of background information relating to this project, including information on the policies and legislation in place to protect those with disabilities. Details about the models of disability and Specific Learning Difficulties (SpLD) including dyslexia are also provided.

As will be detailed in Chapters 2 (a literature review) and 3 (a systematic review), there is currently very limited information or literature available relating to how doctors with SpLD cope in the workplace. Changes in legislations mean that those with SpLD cannot be discriminated against and have the right for 'reasonable adjustments' to be made not only whilst in education but also in the workplace. Many people with SpLD develop compensatory coping strategies to help in overcoming any difficulties experienced, however the suitability of these for doctors in a clinical environment and their successfulness has yet to be determined. Additionally, there are a number of factors that could increase stress and anxiety which, in an already stressful position, could have negative results on doctors' ability to cope and possibly affect their fitness to practise. Thus, there are a number of potential factors that could determine the success of a doctor with SpLD, which will be discussed in detail below.

This project aimed to explore how medical doctors (who are registered to practice in the United Kingdom (UK)) with SpLD are coping in the workplace and to identify any coping strategies used by such doctors. It also aimed to establish attitudes held by doctors with dyslexia about the impact this has on their working life and whether this has influenced their career choices and perceived success as a doctor. Having a better understanding of how qualified doctors with SpLD cope in the workplace may benefit medical students with SpLD and improve awareness for peers and colleagues, thus, benefiting doctors and their work. Effective coping strategies used by doctors can then be applied to medical students with SpLD, to aid their learning and develop transferable skills from university to clinical practice.

Disabilities in the workplace and the Equality Act 2010

The Equality Act (2010) defines a disabled person as someone who has a mental or physical impairment that has a substantial and long-term adverse effect on the person's ability to carry out normal day-to-day activities. In the UK there are laws and acts in place to protect people within the workplace. For disabled people, there were two acts in place to aid in ensuring that discrimination is prevented: the Disability Discrimination Act (DDA, 1995) and the Disability Rights Commission (DRC, 1999). These were then incorporated into the Equality Act (2010) which came into effect in October 2010. The aim of the Equality Act (2010) was to simplify the law by combining numerous anti-discrimination legislation; such as Disability Discrimination Act 1995, Equal Pay Act 1970, Sex Discrimination Act 1975 and the Race Relations Act 1976. This has resulted in the UK having a single Act of Parliament that necessitates equal treatment of individuals in access to employment and both private and public services. A number of personal characteristics are now protected under the Equality Act 2010. There are 9 'protected characteristics' including Race, Sex, Religion, Age and Disability (The Equality Act 2010). The Equality Act 2010 covers a range of disabilities, including physical, mental and developmental disabilities such as dyslexia.

It is illegal for an employer to discriminate against a disabled person when recruiting for a job or when considering people for promotions, redundancies or dismissals. As part of the Equality Act employers must make 'reasonable adjustments' to their premises or employment arrangements if the current arrangements or premises substantially disadvantage a disabled employee, or prospective employee, compared to a non-disabled person.

Over recent years, studies have shown that people with a disability have a significantly increased chance of being without paid work (Miller and Gardiner, 2006), to be completing less skilled work, to be on lower wages, and to leave the labour market earlier than those without a disability (Cabinet Office, 2005). Roulstone and Warren (2006) reported that there is a large amount of evidence to suggest that when disabled people are in employment they are hard working and adaptable. Although there are many barriers in their way, there are organisations that have developed effective initiatives that are trying to disperse the notion that disability is intrinsically linked with inability and low productivity. An early example of this can be seen in 2002 by the

British Broadcasting Corporation (BBC) where they developed an annually reviewed Action Plan which involves a number of set targets to increase the number of disabled people working within the media and cultural industries.

In April 2011 the Public Sector Equality Duty (PSED) came into force. This is part of the Equality Act 2010 requiring all public bodies, such as the National Health Service (NHS), to 'eliminate unlawful discrimination, advance equality of opportunity, and foster good relations' (NHS, 2013a). The PSED supports public bodies to consider how people will be affected by their activities in order to create policies and services that are fitting and accessible to everybody as well as meeting the needs of different people. 'The duty (PSED) has a key role to play in making sure that fairness is at the heart of public bodies' work and that public services meet the needs of different groups' (NHS, 2013a).

The NHS was founded in 1948 and now employs 1.7 million people, making it the world's largest publicly funded health service. In 2013, this included 147,087 doctors, 371,777 nurses, 18,687 ambulance staff and 105,711 hospital and community health service (HCHS) medical and dental staff (NHS UK, 2013b). As part of complying with the PSED, NHS organisations have to purposely consider the three aims of the PSED, outlined below, when developing polices and services etc.

1. Eliminate discrimination, harassment and victimisation and other conduct prohibited under the Act.
2. Advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it.
3. Foster good relations between persons who share a relevant protected characteristic and persons who do not share it. (NHS, 2013a)

Having SpLD is considered a disability under the Equality Act (2010). A person is considered to have SpLD when their ability in a specific area (for example, reading) is significantly lower than would be expected for their overall cognitive ability (Hall, 2008) despite having the opportunity to learn (Snowling and Stackhouse, 2006). SpLD represent a range of learning difficulties including dyslexia, dyspraxia, dyscalculia, dysgraphia, attention deficit hyperactivity disorder (ADHD) and Asperger's Syndrome. One commonality between SpLD has been found to be weaknesses with short term

memory and working memory (Dighe & Kettles, 1996; McLoughlin et al., 1994; Jeffries and Everatt, 2004). There is often co-morbidity between these conditions (people can have more than one), with individuals being effected in different ways and varying severity. The effects of SpLD can also alter depending on the life circumstances of the individual (Kong, 2012). Further information about SpLD and dyslexia are detailed below.

Models of disability

During the 1960s to be disabled was considered to be a 'personal tragedy' and often led to a life of exclusion and dependency on others (Barnes et al., 1999). However in recent times the definition of disability and the implications of having a disability have developed. There are now a number of different perspectives of disability, and the perspective taken can influence how disability issues are dealt with

The Medical Model

The Medical Model of disability is one of the oldest models of disability and it regards a 'person's functional limitations (impairments) as the root cause of any disadvantages experienced and these disadvantages can therefore only be rectified by treatment or cure' (Crow, 1996, p.57). In this model disability is seen as the result of a biological impairment and it does not take into account any social or environmental factors which could contribute to an individual's disability (Chan et al. 2009). According to this model it is the medical profession who have the power to define, control, treat and cure disabled people (Oliver, 1996).

The Social Model of disability

One of the most influential models of disability is the social model of disability, with this perspective often being 'taken as the explicit or assumed frame of reference in national and local government policy documents across the UK' (Read et al., 2012, p.225). The social model was developed by disability activists in the Union of Physically Impaired Against Segregation (UPIAS) during the 1970s (Shakespeare and Watson, 2001). Lang (2001) described how 'the social model of disability should not be considered as

a monolithic entity, but rather as a cluster of approaches to the understanding of the notion of disablement' (Lang, 2001, pp.2). This model is moving away from the more traditional biologically medical model of disability where it is the person and their individual impairment which is seen as the barrier. The social model understands the person to be disabled by barriers in society and that it is not the disabled impairment that is causing difficulties (ODI, 2010). Lang (2001) stated that it is the unsuitable physical environments and negative social attitudes that disabled people experience which result in the oppression, exclusion and discrimination of those with a disability. This, therefore, implies that it is the environment that needs to be modified in a sufficient way to support the disabled person. The barriers to disability in society relate to the following:

- The physical environment — relating to the accessibility of buildings/services
- People's attitudes — relating to stereotyping/discrimination/prejudice
- Organisational — relating to rigid policies, practices and procedures

(ODI, 2010)

As opposed to trying to fix/cure the person, as the medical model would prescribe, by using the social model of disability, organisational policies, attitudes and physical accessible solutions can be developed to create a more inclusive society (Hughes, 2012). Oliver (1986) argued that disability should not be viewed as an individual tragedy but as a form of social oppression. The move towards the social model of disability has meant that, as opposed to viewing disabilities as a limitation in performing a day to day activity, the individual is disabled by the barriers in society; whether these barriers are people's attitudes and prejudice, environmental factors or organizational factors. Following this model, the way to support those with disabilities would be to adjust attitudes, not just at a societal level but also at an institutional and individual level (Bowater and Gibson, 2013). At the heart of the social model are its definitions and distinctions between disability and impairment; which distinguishes it from social contextual approaches to disability (Shakespeare, 2013). Hughes and Paterson (1997) argue that the best definition of these two vital concepts of the social model comes from UPIAS.

- 'Impairment – lacking part or all of a limb, or having a defective limb, organism or mechanism of the body.

- Disability – the disadvantage or restriction of activity caused by a contemporary social organization which takes no or little accounts of people who have physical impairments and thus excludes them from the mainstream of social activities.'

(UPIAS, 1976, p. 3-4).

Despite the successes of the social model in promoting disability as a civil rights issue and aiding in developing schemes for disabled people enabling more independence and control (Oliver, 1996), some have begun to question its use. Although the social model of disability moves away from the medical model, it does not take into account the 'lived experience' of impairment (Crow, 1996). It has been argued that the social model has hardly evolved over the last thirty years and has become a hindrance in trying to further disability studies and movements (Shakespeare, 2013). Central to the development and progression of the social model of disability is disabled people's own interpretation of their experiences (Barnes et al., 1999). Shakespeare and Watson (2001) critiqued the social model finding fault with its conceptual division between impairment and disability and the idea that it is society alone that disables people with impairment. Crow (1996) suggested the difficulties experienced by those with disabilities cannot be removed by merely adjusting environmental or social factors. Shakespeare and Watson (2001) also argue how it may not be possible to create a 'barrier free environment' as removing barriers for one person with an impairment may then create a barrier for a person with another impairment, and that it is a person's impairment together with social barriers of society that are involved in causing disability. As opposed to maintaining that disability is either the result of social or medical factors, Shakespeare and Erickson (2000) believed that a more appropriate social theory of disability would take into account social dimensions as well as personal and physical experiences of disability.

World Health Organization (WHO) ICF model of disability

The World Health Organization (WHO) ICF Classification (International Classification of Functioning, Disability and Health) also notes the difference between impairment and disability in their definition of disability and takes into account social aspects. From this perspective disability is viewed as a more multifaceted phenomenon and not a health issue. This definition acknowledges that there is an interaction between the elements of

a person's body and the elements of their society. Therefore to be able to overcome the difficulties encountered by those with a disability, social and environmental barriers need to be removed (WHO, 2014).

- 'Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions.
- An impairment is a problem in body function or structure.
- An activity limitation is a difficulty encountered by an individual in executing a task or action.
- A participation restriction is a problem experienced by an individual in involvement in life situations.'

(WHO, 2014)

Chan et al (2009) stated that this ICF model incorporates all key concepts of the medical, functional and social disability models and has become one of the most frequently used frameworks for disability research.

Relational model of disability

Following from the UK Social Model of disability, there are other social approaches to disability have been developed, for example in the Nordic countries a relational model of disability has been devised. This approach considers disability to be 'situational rather than an always present essence of the person' (Tøssebro, 2004). This approach describes how disability is the result of a mismatch or 'poor fit' between an individual and their capabilities and their environment or society. In this view a person is considered to be disabled if an impairment (limitation, disease or loss) results in them experiencing barriers in their life (Barnes and Mercer, 2010). This approach also emphasizes the importance of complex interactions between individual and environmental factors and how whether a specific impairment is disabling depends upon the environment or context that a person is in (Arnardóttir and Quinn, 2009). Even though this is not a singularly agreed on approach, this understanding of disability has been widely adopted through Nordic countries and used in government policies and social science literature (Arnardóttir and Quinn, 2009).

Dyslexia

The word dyslexia comes from two Greek words, 'dys', meaning abnormal or impaired, and 'lexis', which refers to language or words (Gabor, 2010). The notion of 'word blindness' was first introduced in 1885 in a paper by a British ophthalmologist James Hinshelwood when describing acquired cases in the loss of ability to read, with reference to Kussmaul (1877) who supposedly developed the term 'word-blindness' when working with brain damaged patients who were experiencing reading difficulties (cited in Beaton, 2005). It was a German ophthalmologist Professor Rudolf Berlin in 1887 who first used the word dyslexia for reading difficulties caused by brain damage (cited in Beaton, 2005). In response to one of Hinshelwood's papers, WP Morgan (1896) a general practitioner from the UK, replied with an account of a patient with no brain damage who still had reading difficulties. This was the first time a description of developmental dyslexia, or what he referred to as 'congenital word-blindness', was reported in medical and academic literature (Beaton, 2005).

There is no agreed upon definition of dyslexia and the term has been the focus of controversial debate, in relation to whether having dyslexia was any different from having general reading difficulties (Snowling and Stackhouse, 2006). The main consistently mentioned indicators in the varying definitions of dyslexia were found to be difficulties with reading, writing and spelling (Gabor, 2010). The World Federation of Neurology defined dyslexia as follows:

> 'Specific developmental dyslexia is a disorder manifested by difficulty learning to read despite conventional instruction, adequate intelligence, and adequate socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities that are frequently of constitutional origin.'
>
> (Rutter and Yule, 2006, p.183).

The British Dyslexia Association (2010) defined dyslexia as:

> 'A specific learning difference which is constitutional in origin, independent of socio-economic or language background and can occur at any level of intellectual ability. It can cause unexpected and persistent difficulties in acquiring certain skills in one or more of the following areas: reading, writing

and sometimes numeracy and spoken language. There may be accompanying weaknesses in the skills that support personal organisation, for example, speed of processing, short term memory sequencing and possible weaknesses in auditory and/or visual perception skills.'

Dyslexia is stereotypically thought of as a condition where a person has severe difficulties with reading, spelling and writing and is not associated with level of intelligence (Murphy, 2010). However, it could also include a number of difficulties involving more than reading and writing, such as difficulties with short-term memory, auditory processing, motors skills and co-ordination and visual processing (Roberts and Mitchell, 2005).

There have been many researchers who have tried to establish the etiology of dyslexia and what dyslexia precisely is over the last century. The cause of dyslexia is still debated and each different theory often has several versions (Ramus et al., 2003). One theory is the Evolutionary Theory of dyslexia which suggests that reading is an 'unnatural' thing for human beings to do and that it has only been a part human of evolutionary history for a short time (Dalby, 1986). It has only been over the last century that reading and writing has been encouraged throughout the western world, therefore implying that perhaps the skills and abilities necessary for reading have not had the time to fully develop yet. Dalby (1986) proposed that the cause of dyslexia lay in cerebral variation or differences and that it is these that are strained when completing the 'unnatural' task of reading.

Another theory of the cause of dyslexia is the Phonological Deficit Theory. When a person is learning to read using the alphabetic system they are required to pair a letter with the related sound of language; this is a grapheme/phoneme correspondence. This theory proposes that there is a deficit in the left hemisphere of the brain, more specifically, an impairment in the representation, storage and/or the retrieval of sound, which affects grapheme/phoneme correspondence (Brady and Shankweiler, 1991). Dyslexia has also been theorised to be caused by a visual impairment, which causes difficulties in processing text. This theory does not imply that it is a visual deficit alone, but that a visual impairment could contribute along with a phonological deficit theory (Stein and Walsh, 1997).

In contrast as explained by the Cerebellum Theory, dyslexia is thought to be the result of a defect in the brain's cerebellum, which results in the person having a number of cognitive difficulties, as this part of the brain plays an important role in motor control, cognitive, and phonological tasks. It is also involved in the automatisation of learned tasks, like reading, so if this is defective then the grapheme/phoneme correspondences could be affected (Nicolson and Fawcett, 1990). The Magnocellular Theory builds on these theories combining aspects of various dyslexic theories to suggest that the 'magnocellular dysfunction is not restricted to the visual pathways but is generalized to all modalities (visual and auditory as well as tactile)' (Ramus et al., 2003, p.842).

Despite arguments around the actual cause of dyslexia, it is estimated that around 10% of the UK population have some sort of dyslexia and that 4% are severely affected (BDA, 2013). Typical dyslexic difficulties (such as reading, writing, spelling, verbal expression, short-term memory, information processing, organisation) can be exacerbated when completing certain tasks in the workplace (Bartlett and Moody, 2000). People are affected by dyslexia in different ways and each can vary in severity. Below are some general difficulties that someone with dyslexia or SpLD may experience in the workplace (Meehan and Tutor, 2007; White, 2007; BDA, 2013).

- Literacy skills – difficulties with reading, writing, spelling, expressing themselves on paper.
- Memory – difficulties in retaining information, instructions, processes.
- Sequencing ability – difficulties in completing a task that requires various stages to be completed in order.
- Visual orientation – difficulties in distinguishing between left and right, up and down.
- Hand to eye co-ordination – difficulties in completing intricate, physical tasks or poor handwriting skills.
- Speech – difficulties in expressing thoughts verbally or mixing up words when talking.
- Organisational skills – difficulties in organising themselves or their workload. May experience difficulties with prioritising their work or with time management.
- Emotional factors – studies have shown that those with SpLD have lower self-esteem and are often more anxious than those without SpLD.

Models of disability relating to SpLD/dyslexia

The most dominant models of dyslexia are the medical and educational models; these are often used by psychologists and educationalists (Riddick, 2001). The medical model approach to dyslexia regards a person with dyslexia as being restricted by a neurological dysfunction. The educational model expands on this slightly as, although it does also refer to cognitive factors such as the phonological deficit theory (described below), it also recognizes the potential effects of education interventions (Macdonald, 2009). The educational model of dyslexia notes that potential deficiencies in environments such as poor teaching can exacerbate dyslexic difficulties (Riddick, 2001).

The social model of disability is illustrated in the way in which dyslexia has been brought about, as it is only since there have been societal changes resulting in an increase in literacy that dyslexia has been brought to the forefront (Riddick, 2000). Elliot and Gibbs (2008) argued that dyslexia is a complete social construct. However Riddick (2000) described how dyslexia can be thought of as both a social construct and medical condition, as it is the literacy-based society that has caused those with dyslexia to be restricted but support/adjustments cannot be implemented until there has been a diagnosis. Macdonald (2012) also explained that not being diagnosed is in itself a barrier to gaining support. In line with the social model of disability, individuals may have impairments such as dyslexia, however it is the negative attitudes of society and the negative connotations associated with being illiterate that have transformed dyslexia into a disability (Riddick, 2001).

The social model dictates that the impairment of dyslexia will only be considered a 'disability' when cultural norms demand literacy. However some researchers have found that different languages could vary the level of difficulty that they impose on someone with dyslexia and could potentially alter whether dyslexia is a 'disability' (Riddick, 2001). Some have suggested that different European languages have a scale of difficulty for those with dyslexia with phonetically transparent languages (apparent letter-sound association) like Hungarian and Italian, being easier than languages like English which are not phonetically transparent (Miles and Miles, 1999; Gyarmathy, 2011). In line with the social model, making alterations to the English language to make

it more phonetically transparent (like the Italian language) would remove some of the barriers that English speaking dyslexics have to face (Riddick, 2001).

Coming from the social model of disability perspective, individuals with dyslexia have to prove that they have a genuine impairment before it is possible to consider how cultural expectations and norms have impacted on their impairment (Riddick, 2001). In relation to disability rights, it is very important that having dyslexia/SpLD does not stop anyone from achieving educational or vocational success (Riddick, 2001). Macdonald (2009) stated that theoretical frameworks like the medical, educational and social models of dyslexia provide an effective analytical tool, however he advised that caution should be taken if trying to use just one theoretical category to fit all knowledge of dyslexia.

Diagnostic approaches used in professional practice

SpLD is an ambiguous umbrella term used to include a number of learning difficulties, with dyslexia being the most common of these. In UK education services, the term 'specific learning difficulties' is often preferred over the word 'dyslexia' (Thambirajah, 2010). As described above, there is no agreed single definition of dyslexia, which could be why the prevalence is uncertain (Démonet et al., 2004; Snowling and Stackhouse, 2006). Some have even disputed that there is such a thing as dyslexia (Elliott and Gibbs, 2008) especially as there is no specific way to test for, or get a diagnosis of, dyslexia. Dyslexia is considered a spectrum disorder; the assessment for dyslexia should measure spelling, arithmetic and reading skills. However, there is an issue with assessing, in that reading is measured on a continuum and there is no cutoff score to determine whether a person has dyslexia or not (Siegel, 2006; Elliott and Gibbs, 2008).

Most assessments for dyslexia have involved establishing a person's intelligence level or IQ (intelligence quotient) score and ascertaining if their reading score is reflective of this. If a discrepancy is found i.e. a person's IQ score was found to be significantly higher than their reading score, this was used to indicate dyslexia. Both the psychiatric classifications ICD–10 (World Health Organization, 1992) and DSM–IV (American Psychiatric Association, 1994) use this 'discrepancy definition' of dyslexia for gaining the criteria required for diagnosis, i.e. a reading level that is significantly lower than expected for a person's IQ score, age and age-appropriate education (Thambirajah, 2010). However this method of testing has been questioned as IQ tests contain

measures that maybe deficient in those with dyslexia, such as verbal memory and vocabulary and so the outcome score would not be an accurate account of their intellectual potential (Siegel, 2006). Also intelligence is an ambiguous concept and studies have found that poor readers with both high and low IQ scores have shown similar reading patterns (Gustafson and Samuelsson, 1999) suggesting that a discrepancy between a person's low reading score and higher IQ score may not be an indication of dyslexia but of a reading difficulty (Siegel, 1992; Samuelsson et al., 1999). Some researchers have even argued that there are no differences between those with general reading difficulties and those with dyslexia (Rice and Brooks, 2004). Elliot and Gibbs (2004) claim that some symptoms of dyslexia have no medical validity, for example letter reversals, clumsiness and short term memory deficits, and that any child put under inspection would display such symptoms.

Labelling of SpLD

There is an ongoing debate concerning whether individuals should be given a diagnostic label for a disability/impairment/difference or not, and the potential advantages and disadvantages of being labelled. Previously Gallagher (1976) summarised the potential positive results of being labelled as dyslexic as:

- It will give an individual a diagnosis, with possible treatments and/or alterations to their environment then being possible.
- It could enable further research, possible resulting in a better understanding, prevention and/or treatment.
- It could be a positive way to increase awareness of a difficulty, potentially causing an improvement in resources through funding and legislation.

Kirby and Kaplan (2003) argued that labelling is necessary in today's world, and that the advantages of using diagnostic labels for SpLD with children are as follows:

- It could make parent's concerns over their children more legitimate and prove there is a reason for their concern and it is not just them being overly anxious parents.
- It enables children to be included in research projects.
- It can legitimise a genuine condition.

- It can enable funds and services to children.
- It can aid in establishing the appropriate type of intervention/support.

In line with the medical model of disability, Elliott and Gibbs (2008) argued, individuals will often seek out a diagnostic label in the hope that this will enable them to find the most effective solution. Macdonald (2010) also argued that labelling can lead to an increase in support for certain groups, meaning that they are able to successfully overcome the social barriers that they face. Riddick (2000) explained how those with hidden disabilities (disabilities that are not visible or obvious to others), such as SpLD, may want to have a label in order to prove that they actually have a disability. Those with disabilities are often aware of the environmental factors which aid in constructing difficulties for them; however in relation to those with hidden disabilities, they have to prove that they have a disability first before they start to confront the environment that is exacerbating their difficulties (Riddick, 2000). Although it has medical roots, Riddick (2000) reports how the term 'dyslexia' is viewed by dyslexics as a socially valid label enabling them to have access to specialist support, societies and role models etc.

Gaining a diagnostic label of dyslexia, rather than being seen as a non-dyslexic poor reader, is often regarded as a way of gaining additional support or help (Elliot, 2005). Ho (2004) argued that for parents, having their child labelled as dyslexic enables the child to have access to additional support and technology that they would not receive if they were just a low achiever, and additionally it takes the blame for the difficulties away from the parents. Elliot (2005) argued that another reason why parents may want their children to be labelled as dyslexic, as opposed to having a general reading difficulty, was because parents thought that dyslexia was linked to stereotypes of being particularly intelligent. Although a study in America found that half of their general public felt that dyslexia was the result of laziness (Roper Public Affairs & Corporate Communication, 2010).

However, Gallagher (1976) explained that by labelling a child as 'dyslexic', the attention is focused on cognitive differences within that child, rather than tackling the potential environmental factors which could have caused or exacerbated the problem. Likewise, Riddick (2000) thought that by labelling children as dyslexic, parents would see their children's difficulties as a medical as opposed to a social problem. Furthermore, Elliot (2005) argued that the label of dyslexia is unnecessary in education as the support or

interventions used with these students are essentially the same as those provided for the students with general reading difficulties.

Gaining a diagnostic label of dyslexia can have a direct impact on the individual involved both positively and negatively. Macdonald (2010) explained that labelling someone as dyslexic can become counterproductive if no other additional support is given. Macdonald (2010) found that gaining a label of dyslexia early enough within their education allowed individuals to get additional educational support and use of assistive technologies, which they found extremely beneficial and enabled them to cope better in future employment when literacy skills were needed. The participants in this study also explained that gaining a diagnosis had helped them gain confidence to face their difficulties and to change their identities from a negative label of low intelligence to a more positive identity based on difference (Macdonald, 2010). Riddick (1996) also reported that individuals found gaining a diagnostic label of dyslexia valuable in establishing a more positive identity and for preventing negative attributions such as lazy and careless. However for some individuals being diagnosed with SpLD or dyslexia could make them vulnerable to being stigmatized and Riddick (2000) noted that some educationalists fear that labelling will lead to stigmatisation (discussed below).

Stigma

Gaining a diagnosis or label may have a negative impact on an individual's life due to stigmas. 'A person who is stigmatised is a person whose social identity, or membership in some social category, calls into question his or her full humanity – the person is devalued, spoiled, or flawed in the eyes of others' (Crocker et al., 1998, p.504).

People in society often like to categorise people based upon their social interaction with them, with any deviation away from what society classes as 'normal' providing the foundation for stigmas (Goffman, 1963). Nalavany et al. (2013) argued that stigmas are socially constructed and often provide a foundation for prejudice, stereotypes and discrimination. The term 'stigma' was used by Goffman (1963) 'to refer to an attribute that is deeply discrediting' (Goffman, 1963, p13). Goffman (1963) distinguished between the experiences of those with a hidden disability versus those with a physical disability in relation to stigmatization. Goffman (1963) suggested that those with a

physical disability were already discredited in relation to stigmatization where as those with a hidden disability were potentially discreditable if their disability was found out. Goffman (1963) also commented on how those with hidden disabilities will have to think about how to control information about their differences from the 'norm' and consider whether they should disclose their hidden disability. They may have already been discredited in some situations, which could result in them facing issues when considering disclosing their disability.

More recently the term stigma has been expanded, to include not just the reactions of others but also behaviours and attitudes of both those with and without stigma (Gray (2002). Scramber (2004) referred to two different types of stigma, termed 'felt' and 'enacted' stigma. Felt stigma is the 'internalized perception of being devalued or "not as good as" by an individual' (Stuenkel and Wong, 2012, pp.53). Felt stigma can refer to feelings of shame, discredibility or fears of being treated differently or being stigmatized, despite perhaps the stigmatizing attribute being hidden or not obvious. This can potentially cause feelings of anguish and unhappiness (Jacoby and Austin, 2007) and can prevent seeking help (Gray, 2002). Enacted stigma refers to the experience of attitudes, perceptions, behaviors and responses of others towards the person who is believed to be different or deviating from the 'norm' (Stuenkel and Wong, 2012).

Goffman (1963) explained how people will often change their behaviors, act out roles or try to create certain impressions so that others will interpret their behaviors the way they want them too, and thus the person will avoid being stigmatized. These changes in behaviors can also be due to dilemmas in how to deal with the tensions caused by social interactions with others. Goffman (1963) explained that when others believe a person is acting in a 'normal' manner, they too will act normally. It is this 'acting normal' that Goffman (1963) described as a key element in effective impression management. Impression management is an "act presenting a favorable public image of oneself so that others will form positive judgments" (Newman, 2009, p.184). Therefore someone with SpLD may wish to use impression management as a way of hiding their SpLD in order to avoid possible stigmatization.

Riddick (2000) commented that there is often the assumption that labelling will automatically lead to stigma, however stigma can occur when there are no formal or

diagnostic labels. The anti-labelling perspective assumes that stigma can only occur after a person has been labelled as dyslexic; however a study by Macdonald (2010) showed that participants felt that they were stigmatized in relation to intelligence levels before being given a label of dyslexia. Macdonald (2010) found that stigmas were not just attached after being labelled but that there are certain symptoms that can be stigmatized regardless of labelling. A study by Riddick (2000) found that even though their label of dyslexia was not public knowledge, children described feeling stigmatized by other children because of visible factors such as poor spelling or finishing their work last.

Educational and occupational success with literacy are associated with measures of achievement in today's society which could make life rather emotionally challenging for adults who are dyslexic (McNulty, 2003). As highly regarded members of society doctors may wish to keep their hidden disability 'hidden' as a means of avoiding stigmatization and preserving the image given to them by society of high intelligence and social ranking. This behavior to conceal a disability to avoid potential stigma and to be perceived as 'normal' is what Goffman (1963) described as 'passing'.

Reasonable adjustments

As part of the Equality Act 2010, which is in line with the social model of disability, if a disabled person is experiencing difficulties in employment, education or when using services, then it is the legal responsibility of the employer, education provider or service provider to ensure that reasonable adjustments are made in order to reduce these difficulties i.e. removing disabling barriers. Adjustments can involve adjusting work tasks or hours, providing supportive equipment or software, and changing the workstation to suit physical needs. Failure to make reasonable adjustments can be a form of discrimination. The main aim of these reasonable adjustments is to avoid a disabled person being disadvantaged compared to a non-disabled person (EHRC, 2013).

There are schemes and support in place within the UK to aid people with disabilities in employment. The Job Centre Plus (a government run agency providing working-age support services) has a scheme called 'Access to Work' where it provides help and support to individuals with disabilities in employment and also provides support for their

employers. Access to Work also offers financial support towards equipment, adapting premises or supporting workers and it is available to anyone who is directly affected by their health or disability in employment (Gov UK, 2013).

Reasonable adjustments for SpLD

Many people with dyslexia develop compensatory coping strategies (establishing alternative ways/methods of doing things) to help them overcome SpLD related difficulties. If these are not effective or need supporting, then those who disclose their disability can seek support and reasonable adjustment in the workplace. Brice and Craik (2004) highlighted the necessity for students and employees to be open and honest in informing people about their disability and special needs. This is especially important as it allows the opportunity for reasonable adjustments to be made.

Types of formal support often provided to individuals with SpLD include assistive software such as:

- Voice recognition software can be used as an alternative to typing on a computer keyboard. Through the use of a microphone individuals can dictate verbally directly on to their computer, eliminating the need to type and spell. This can be useful for producing written work, documents, letters etc.
- A screen reader is a programme that will read aloud what is written on the computer screen. This can be useful for reading large amounts of text and proof reading.
- Mind mapping helps to express thoughts and ideas on the computer and create relationships between thoughts, concepts and ideas. This can be useful for planning documents, ordering thoughts and information and taking notes.
- A spell-checker that works on phonetic spelling. Often using a version more suited to their areas of expertise (medical/legal). This can be useful when there is no spell-checker available or the facility on the individual's word processor is not sufficient.

Other assistive aids often provided to those with SpLD include the provision of a laptop, so people can have easy access to assistive software, and printers to enable them to print their work off to read/make notes on/highlight sections. Other aids include

Smartphones for help with organising and planning work, and digital voice recorders to record information, sequences, meetings etc. instead of having to write notes.

It is not just physical aids that can be part of reasonable adjustments. Adjustments can also be made to job roles and responsibilities, or additional time can be allowed for tasks. Other support such as training sessions to help individuals develop coping strategies to overcome their difficulties can be offered, such as training on creating check lists, colour coding systems, study skills, memory techniques and mind mapping techniques.

There are many types of support, adjustments and coping strategies that can be developed to help someone with SpLD in their work. Often these are individually designed to suit a specific need of the individual, depending on how their SpLD affects them and their work.

Doctors with SpLD and fitness to practise

Through history there have been many kinds of healers but not a single occupation that was defined as 'medicine' (Freidson, 1970). Medicine only became a primary learned profession after the development of the universities in Europe (Freidson, 1970). In today's modern society the profession of medicine has continued to change due to factors such as the creation of the UK National Health Service (NHS), development of the social model of disability, societal changes in the role of women and, increases in multicultural societies (Bowater and Gibson, 2013). The demographics of those studying medicine and working as doctors has also changed due to changes in UK population, legislation and policies and the increase in the number of medical specialties (Bowater and Gibson, 2013).

Freidson (1970) explained how 'preeminence' is considered a major characteristic of the medical profession in terms of both prestige and authority of knowledge. Today those who are qualified to practice medicine are thought to have the authoritative and definitive knowledge regarding the illness and its treatment and are highly regarded in society (Freidson, 1970). There is also a commonly held perception that doctors should be the essence of health and fitness. However those doctors who do not meet these perfect standards, for example if they have a disability such as SpLD, could be

susceptible to discrimination from both their colleagues and their patients (Bowater and Gibson, 2013).

From a historical perspective, there are reportedly several highly regarded successful doctors who have had SpLD, such as John Hunter (founder of scientific surgery), Sir Arthur Conan Doyle (physician and writer), Carl Gustav Jung (founder of analytical psychology) and Harvey Cushing (pioneer of brain surgery), demonstrating that it is possible to be a doctor with SpLD (Accardo et al., 1989; Majumder et al., 2010).

The first step towards becoming a doctor is being offered a place at medical school. In order to be accepted on a medical course students must have the potential to become 'fit to practise', as patient safety is the top consideration for the General Medical Council (GMC, 2009). The GMC states that a doctor is considered fit to practise if they can be competent in what they do, develop effective relationships with patients and if they act responsibly in their work. The GMC emphasises the importance of responsibility for doctors in relation to professional conduct and their respected position within society (GMC, 2009). For the majority of medical school applicants, disabilities and health conditions will not cause fitness to practise concerns 'provided the student receives the appropriate care and reasonable adjustments necessary to study and work safely in a clinical environment' (GMC, 2009).

Upon qualifying from medical school, all graduating students need to have demonstrated the outcomes outlined in Tomorrow's Doctors (GMC, 2009), as these standards form the basis of whether a student is fit to practise and become a safe and successful doctor. However Fielder (2003) noted that once qualified some of these competencies may not need to be maintained by practitioners therefore 'disability can preclude the study of medicine but not it's practice'. This led to Fielder (2003) suggesting that a more flexible approach to training or even introducing different types of registration would offer a wider choice for potential medical students with a disability. However the GMC made a statement on disability in medical education and training in May 2012 and explained how, although some specialties do not involve all the competencies set out in Tomorrow's Doctors, medical students still need to have demonstrated these when they graduate to make sure graduating medical students practise in a way that maintains patient safety, and have sufficient competencies and skills to meet employers' service needs (GMC, 2012).

Studying medicine with SpLD

As described above, The Equality Act (2010) applies to education providers and therefore disabled students cannot be discriminated against and have the right to have reasonable adjustments made whilst they are studying. It is the institution's responsibility to anticipate the needs of disabled students and to ensure that all students are able to make use of all the facilities and services provided.

There is no legal obligation to disclose having a disability when entering clinical practice, except if there are any potential Health and Safety issues to the individual or their colleagues caused by the individual's condition. In relation to the issues around disclosure and the safety of individuals, colleagues and patients, the GMC developed the Good Medical Practice guide (GMC, 2013a). This guide details how a suitably qualified colleague must be consulted if a person feels that they have a disability/condition that may affect their judgement or performance in the workplace.

The number of students with SpLD in further education has increased (Wray et al., 2012). According to Shrewsbury (2012) SpLD affects up to 1.9% of medical students and a proportion of doctors in speciality training. The BMA (2009) also reported that accepted applicants for medicine with SpLD increased from 1.2% in 2004 to 1.7% in 2009. It is not compulsory for a student to disclose having a disability when applying to a higher education institution; however it would need to be declared if individual support was required.
A report by Swan (2007) for the Medical Schools Council (MSC) found that out of the 31 medical schools in the UK, the median rate for any disability or illness requiring support reported to the department was 3.4%, with over 50% of those cases having dyslexia. There has also been a rise in the number of medical students being diagnosed with dyslexia during their training. Previous research has concluded this is due to an increase in study demands during medical training and students' previous coping strategies not being adequate to deal with this intensification (Ricketts et al., 2010; Rosebraugh, 2000).

Completing a medical degree requires an extremely high level of commitment and dedication and is a mixture of academic and clinical practice. Styles of medical degree course can vary with some institutions having a traditional, lecture-based approach to

training whereas other institutions offer problem based learning (PBL) courses where independent learning in small groups is emphasised. Gaining entry into one of the 31 undergraduate medical schools in the UK is highly competitive (MSC, 2013a) and so a potential student maybe hesitant about disclosing SpLD, even though this should not affect their chance of being accepted. Guidelines for medical school admissions have been developed by the MSC (2005) as admissions staff do need to consider the impact of the applicant's SpLD to ensure that they will be able to meet the requirements of being 'fit to practise'.

As the course structure can vary greatly, so to can the forms of support offered to those students with SpLD. With more lecture-based traditional courses, giving advanced copies of the lecture notes or providing a digital voice recorder to record the lecture may be appropriate; while with PBL courses, support with organisational skills might be beneficial.

There is support and advice available from the British Medical Association (BMA) for students with a disability attending medical school, which emphasises that 'it is important to remember that dyslexia is not a barrier to becoming a doctor and these difficulties can be overcome with appropriate support' (BMA, 2013a). Although there maybe elements to a medical degree that a student with SpLD may find more difficult than those students without SpLD the BMA, along with previous research, highlights some of the positive aspects that medical students with SpLD may have, such as being creative, good verbal communicators, innovative thinkers and demonstrating good practical skills (BMA, 2013a; Sanderson-Mann and McCandles, 2005). Relevant research and literature relating to SpLD and medical students is detailed in Chapter 2.

The GMC (2008) devised 'Gateways to the Professions' which contains suggestions and advice for medical schools to help ensure that medical students with disabilities are not confronted with unnecessary barriers when establishing their medical careers. Medical students with disabilities, including SpLD are entitled to 'reasonable adjustments' during medical school. Reasonable adjustments cannot be made to the competencies that a medical student has to achieve. However adjustments can be applied to the way in which a medical student demonstrates these competencies, through adjusting methods of learning and assessments.

Medical schools use a range of exam styles to assess medical students. There have been some concerns that medical assessments, especially multiple choice style exams, may disadvantage those students with SpLD. However research has shown that with appropriate test accommodations (such as extra time) there is no difference between the results gained from those students with SpLD compared to those without when completing an appropriately designed medical multiple choice test (Rickett et al., 2010). A further study by McKendree and Snowling (2011) exploring a range of assessments on medical students with dyslexia (who were given 15 minutes extra per hour of written testing) also concluded that there was no evidence that the assessment styles used in medical schools disadvantage students with dyslexia.

Along with extra time during exams, other types of support and reasonable adjustments that could be suitable for a medical student (depending on their SpLD) include:

- Providing course materials ahead of lectures
- Ensuring buildings and facilities are accessible
- Providing student support
- Providing additional time for course work
- Providing assistive software
- Providing note takers and scribes

In conclusion, this chapter has discussed The Equal Act (2010), models of disability, models of SpLD, dyslexia, labelling, stigmas and reasonable adjustment and has highlighted some of the potential issues surrounding healthcare professionals/students with SpLD. The next chapter will continue on to examine current research and literature in relation to SpLD and the medical profession.

CHAPTER 2

LITERATURE REVIEW

This chapter will focus on the current literature regarding medical professionals with disabilities and SpLD. The majority of the research conducted thus far concerning medical doctors with disabilities has concentrated on mental health problems, with many studies focusing on mental health issues such as stress, anxiety and depression caused by the nature of their work. Morgan and Chambers (2004) noted that there was a lack of research in relation to working doctors and hidden disabilities (hidden disabilities refer to those that are not easily recognised/seen by others). Of the research that has been conducted regarding SpLD and the health profession, the majority of it has been focused on qualified nurses, and nursing and medical students; research with doctors is currently underrepresented in the literature.

There is a debate within medical education concerning 'the suitability of individuals with dyslexia to study for and practice as safe and effective doctors' (Gibson and Leinster, 2011, p395). Concerns have been expressed over the suitability of those with SpLD to work in the clinical environment due to concerns over error rate and patient safety (Wright, 2000). The debate about healthcare professionals with SpLD is not exclusive to academics and members of the healthcare profession. There have been a number of instances of the media giving less than favourable accounts of healthcare professionals or students with dyslexia, which can taint perceptions and understanding about what SpLD are (Murphy, 2010). An example of this can be seen in The Times (July 2008), when discussing allowances for dyslexic medical students in relation to multiple choice examination papers, the article read 'To be blunt: someone who can't be sure to read 18mg rather than 81mg and who mistakes peroxone for paracetamol is not someone I'd want practising medicine on me - even if they had a wonderful bedside manner and a passion for medicine'. It is important to note however that the validity of these fears cannot be proven by existing research.

Fielder (2003) argued that the attitudes of some within the medical field towards their own members who have a disability is outdated and warrants debate. There has been a propensity to generalise about the overall effects of having a disability and the potential effects that this could have upon a medical professional, resulting in both under- and over-

estimating these potential effects (Fielder, 2003). Fielder (2003) also argued that 'many disabling effects are societal and a result of our arrogant presumption that we fully understand the functional effects of impairment' (Fielder, 2003, p.1305). There is thought to be a significant amount of underreporting of hidden disabilities amongst doctors in the medical profession (Morgan and Chambers, 2004). Reasons for this could include concerns that their disability could undermine patients' confidence in their abilities to practise medicine and concerns expressed by others around dyslexic doctors prescribing medication (Robert et al., 2004).

As discussed in Chapter 1 there is legislation in place to protect those with disabilities, including SpLD, from being discriminated against in the workplace and during education. However research has shown that fears of stigmas and discrimination still have an impact on those with SpLD. Research by the Office for Disability Issues (ODI, 2013) which is part of the Department of Work and Pensions (DWP), found that there was an increase in the general population's awareness of Disability Discrimination Act (DDA) and/or the Equality Act between 2005 and 2008 however this then decreased in 2011. This could be due to the changes in equality legislation happening in 2010.

Nurse participants in a study by Crouch (2008) described their colleagues as having negative attitudes towards dyslexia; furthermore, participants never referred to the strengths of dyslexia, only the weaknesses. Illingworth (2005) observed that dyslexic nurses often expressed feeling stigmatised in life, not just within the NHS or their working environment, but they did not want to be viewed or judged as different.

Miller et al. (2009) reported how 19 out of 288 medical students commented that they believed that having learning difficulties would prevent someone from working as a doctor and they would be concerned about doctors with learning difficulties having a limited professional career. A possible explanation for some of the stigma within medical schools could be due to medicine being such a demanding subject, such that those who do not have a disability cannot imagine how a person could cope with these demands if they had a disability (Kahtan, 1999). Awareness of disabilities within the medical profession is generally considered to be low and Roberts et al. (2004) argue that greater awareness of disabled students' specific needs is required to ensure appropriate support is given and to help guarantee patient safety.

As described in the previous chapter, there is no legal obligation to disclose having a disability, except if the individual's condition leads to any potential Health and Safety issues for the individual or their colleagues. There are many factors that play a part in whether someone decides to disclose their SpLD. A report conducted for the British Medical Association (BMA, 2007) found that stigmas attached to having a disability and unsympathetic colleagues were common reasons for doctors not disclosing their disabilities.

In a study with nurses (Morris and Turnbull, 2007a) the participants appeared to be selective in who they chose to disclose information to. Participant's perceptions of their mentor's professional and personal qualities influenced their willingness to disclose their disability to that mentor. If there was a trusting and supportive relationship nursing students were much more likely to disclose, as opposed to those who had overly critical mentors and believed their mentor to be patronising and uncaring (Morris and Turnbull, 2007a). This study also found that for some nurses disclosure of their SpLD was dependent upon their perception of possible supposed benefits, such as extra tutor support and additional exam time.

Other factors such as the length of students' placements effected disclosure rates, as those in longer placements were more likely to disclose their disability. Some students with dyslexia expressed concerns that disclosing their disability to a mentor could impact upon their future career and progression (Morris and Turnbull, 2007b) and there was often a cost versus benefit analysis conducted to establish whether it was in the participant's interest to disclose (Morris and Turnbull, 2007a). Staff tensions could be high in stressful, chaotic areas such as intensive care which might reduce nurses' willingness to disclose (White, 2007).

Illingworth (2005) explored the effects that dyslexia could have upon nurses and healthcare assistants (HCA) and ways to improve their working lives and to create a 'dyslexia–friendly' environment and organisational culture to enable those with dyslexia to achieve their full potential. This study emphasised the importance of support from colleagues and employers and found that, although dyslexia can affect the work of nurses and HCAs, they can make a make a significant contribution to the care of the patients. In another study, there was a strong fear of ridicule, job loss, unfair judgements, victimisation, discrimination amongst some dyslexic nurses, and the belief of a lack of understanding from their

peers/colleagues/others (Morris and Turnbull, 2007b). Many commented on a fear that others would laugh at them when they made a mistake and have a lowered expectations of their abilities (Morris and Turnbull, 2007b). Madaus et al. (2002) explored the number of graduates with SpLD from a large educational institute in America who had self-disclosed their SpLD to their current employer. Despite nearly 90% of their respondents stating that having SpLD affected their work, only 30.3% had actually disclosed their SpLD to their employer; with 46.1% stating they had not due to concerns about negative repercussions, such as stigmas and concerns for job security.

Dyslexic nurses have been found to use 'impression management' when disclosing and choosing carefully who they decided to disclose information to and the amount of information disclosed in order to be viewed in a positive way (White, 2007). This study by White (2007) also reported that there was a general agreement that SpLD and other disabilities in general should be disclosed when working in the medical profession in order for appropriate adjustments to be made, but that the person disclosing should be aware of possible negative consequences. Morris and Turnbull (2006) found that dyslexic nurses felt they had a responsibility to disclose any disability they had in an attempt to minimise risk to patients. If disabilities are not disclosed to relevant members of staff, then people with a disability may not be receiving the support or adjustments that they perhaps require to work to the best of their ability and ensure that they are fit to practise.

One of the first papers to report on the issues experienced by dyslexic doctors was Guyer (1988) who commented that many people with dyslexia have made valuable contributions to numerous fields including medicine. The paper went on to emphasise that when receiving the appropriate assistance (with study skills, academic tuition and extra time) dyslexic medical students can become 'competent, creative professionals' (Guyer, 1988, p.1151). Under the Equality Act 2010, individuals in both the workplace and education are entitled to 'reasonable adjustments' to support them in the tasks. Such adjustments for individuals will vary according to their specific needs. But it is important that adjustments for healthcare students do not compromise any of the competency standards set by their professional bodies. Also, for healthcare students, adjustments to their university education environment can often be easy but adjustments for the clinical placement environment are not always employed (Morris and Turnbull, 2006).

Difficulties described by some medical students include written work, note taking, poor concentration, spelling of medical terms, and filtering out distractions when on wards (Miller et al., 2009). A study by Millward et al. (2005) explored a number of different tasks, including student and qualified nurses completing cognitive tasks simulating one of the key skills involved in drug administration. The results for this study showed 'tentative evidence' that certain skills involved in completing drug administration may be problematic to those with dyslexia. This is supported by Morgan and Chambers (2004) who found that during interviews with nurses with dyslexia, drug administrations and calculations were stated as common aspects of medical tasks affected by SpLD. Similarly, research with student nurses conducted by Sanderson-Mann et al. (2012) revealed that the tasks areas deemed to be the most problematic were drugs calculations, handovers and dealing with documentation. They also reported that all students, irrelevant of whether they had a disability of not, reported experiencing difficulties with both drugs calculations and handover procedures (Sanderson-Mann et al., 2012).

While on clinical placements, student nurses with SpLD reported that dyslexia had affected their practice, for example difficulties with spelling, short term memory. They also required additional time to complete tasks and had lower confidence levels due to their reading and pronunciation difficulties (Child and Langford, 2011). Other student nurses claimed that they were uncomfortable in expressing their opinions and felt uneasy when they had to read or write in front of others (Wray et al., 2012). Other difficulties experienced by nursing students reported by Miller et al. (2009) included taking notes during lectures, written work, written exams, spelling medical terms, low levels of concentration and being able to hear information when on busy wards.

To summarise, the most frequently reported areas that have been identified where healthcare professionals with dyslexia may have difficulties are:

- Prescribing skills
- Note taking
- Dealing with medical terminology
- Completing written documentation
- Patient notes

- Handwriting
- Multi-tasking
- Reading information
- Remembering information and names

(Millward et al., 2005; Morgan and Cambers, 2004; Illingworth, 2005; White, 2007; Crouch, 2008; Miller et al., 2009).

Millward et al. (2005) noted that as a result of experiencing these difficulties, individuals with SpLD can experience high levels of stress and frustration; additionally people's reactions when they disclose their SpLD can lead to feelings of anxiety and low levels of confidence. This stress can also lower people's confidence in their ability to learn (Child and Langford, 2011).

Research has suggested that a higher numbers of individuals with SpLD may be in the caring and healthcare fields as they may have particular strengths to bring to these professions (Taylor and Walter, 2003). Wiles (2001) stressed that a person with SpLD could be a valuable asset to nursing due to bringing positive skills to the role such as being highly intuitive and insightful, using their creative imagination and curious personalities. Wiles (2001) also argued that the level of creativity potential of those with SpLD should be harnessed and utilised in the nursing and other professional fields.

General positive aspects of having SpLD include having good interpersonal skills, problems solving skills and creative skills and having higher levels of compassion and empathy (Dale and Aiken, 2007). Other positive qualities in dyslexic nurses include being insightful and intuitive, creative and innovative and good problem solvers (Sanderson-Mann and McCandless, 2006). Other researchers have found that nurses with SpLD felt they were able to be more empathic with their patients, were more diligent and were lateral thinkers (Morris and Turnbull, 2007b; White, 2007).

Murphy (2008) highlighted the fact that although universities and higher education institutions are now much more active in providing support for disabled students while they are in education, this is not the case when in clinical environments. One of the major concerns regarding healthcare professionals having SpLD is related to the notion that their SpLD may affect their competency to practise when in the clinical environment (Sanderson-Mann et al., 2012). Everyone has the potential to make an error or have uncertainty in the decisions they make and healthcare professionals are no exception (Child and Langton, 2011). Millward et al. (2005) explained that dyslexic nurses often go to great lengths to ensure patient safety, creating strategies to check their work is correct and to avoid errors, especially in areas such as drug administration and clinical procedures. This is supported by interviews conducted by Crouch (2008) with dyslexic nurses who also reported extra efforts to ensure that they did not make mistakes and were fit to practise. However some

professionals avoided dealing with certain situations, such as not answering telephone calls in case they forgot an important message, which could result in the patient being put at risk (Crouch, 2008).

Difficulties experienced by healthcare professionals, as described above, can be exacerbated when stressed (Illingworth, 2005). Burd (1990) suggested that when someone with dyslexia is experiencing high levels of anxiety and stress, their work performance will be affected, which could negatively impact patient safety. The ability to cope with difficulties and stress due to having SpLD at work often depends on strategies employed to deal with these situations, however sometimes stressful situations can weaken the effectiveness of strategies, exacerbating the person's difficulties (Illingworth, 2005). This is supported by Hulatt (2009) who reported if someone with dyslexia does not receive the correct support then this results in an increase in stress, which if experienced for a prolonged amount of time could lead to the development of strong feelings of insecurity, which will be reflected in their work performance. Hulatt (2009) believed that the possible success of a dyslexic adult is connected to their ability to identify and adapt their weakness caused by dyslexia and develop their strengths in order to create effective compensatory coping strategies.

People with dyslexia establish a range of coping strategies to overcome the various difficulties they experience. Individual coping strategies developed to help in the workplace include carrying a phrase book/dictionary, asking patients to help, rehearsing handovers, and using shorthand for notes or having printed out documentation (Illingworth, 2005). Many nurses commented that strategies were designed to reduce error rates and ensure patient safety, many of which involved checking and rechecking their work (White, 2007). Murphy (2008) also found that healthcare students kept shorthand notes and lists, used proof readers, technology and rehearsing instructions; many difficulties can be simply overcome by small adjustments.

For medical professionals with SpLD, achieving success in the clinical environment seems to depend upon effective coping strategies and support being in place, which depend upon the individual disclosing their disability and their manager/mentor having enough awareness and the ability to support them (Morris and Turnbull, 2007a). As noted previously, the diagnosis of SpLD can carry a stigma (Morris and Turnbull, 2006), leading some people to rely more on informal methods of support through help from friends and family members, therefore limiting the number of people they disclose to and keeping it away from their

working environment (White, 2007). Other factors such as the working environment and attitudes towards disabilities also have a significant effect upon people with SpLD in the medical professional affecting their willingness to disclose.

Jamieson and Morgan (2007) reported that if an individual had successfully established appropriate coping strategies in their previous education to overcome any difficulties that they were experiencing then they may decide not to disclose their SpLD when starting a new educational course. However if a person does not disclose their disability then they are not covered by the Equality Act. Therefore if individuals experience increased academic pressure later on in their course that exacerbates the impact of their SpLD, they may find they need to disclose their disability in order to receive additional support.

A study of medical students by Gibson and Leinster (2011) found that those students with dyslexia who received additional time for their written work from their first year did better in the later stages of their course than those with SpLD who did not receive any written concessions. Miller et al. (2009) also found that many dyslexic student nurses were given extra time during examination, however some participants commented that they believed this type of support to be inappropriate as it was not reflective of the clinical environment. Therefore these students felt it would be better to get used to working in a time-bound environment. This notion was also reflected in the finding that medical students had not sought any other support while on clinical placement (Miller et al., 2009). Wray et al. (2012) explained how although students may develop coping strategies in their educational environment, when placed in a diverse clinical setting, these strategies can often be difficult to transfer or become obsolete.

Provisions that were considered more appropriate forms of support included having better access to handouts and lecture slides prior to a lecture/seminar and being more aware of who to contact to discuss any issues with disability (Miller et al., 2009). Thus it is important to consider not only what support can be offered, but whether such support is actually useful. The use of technology (laptops) was also deemed unsuitable for use in the clinical setting, mainly due to fears over the equipment's safety, resistance from staff and the users not being trained sufficiently (White, 2007). A study into the use and preference for computer devices in hospitals by Andersen et al. (2009) found that space and the layout of hospital wards limited when and how computer devices could be used and that mobile devices sometimes limited the nurses' mobility. The nurses reported writing information

down from the computer instead of carrying the device around with them (Andersen et al. 2009). This could therefore increase the level of written work required by nurses, which for a nurse with SpLD could cause difficulties and they may have to find another way to cope.

Another support strategy found useful to nursing students with SpLD by Wray et al. (2012) was offering additional specialist study skills sessions, involving areas such as support with study skills and learning techniques, essay writing, numerical skills and revision techniques. These sessions were focused on the areas that represent weaknesses to a nurse with SpLD and focused on supporting them and where possible using a strength to help overcome the difficulty. For example, working on creating effective reading and note taking methods as these can be particular weaknesses for those students with SpLD, and focusing on using strengths for revision skills as exams are often times of stress for students which could exacerbate their weaknesses. It was found that providing these additional sessions actually increased the possibility of progression for students and also increased the chance of them contacting the Disability Services. Wray et al. (2012) went on to suggest that providing this support to all nursing students, and not just using it as a reasonable adjustment, would benefit not only the students but also the institution in terms of time and resources.

Support from managers and mentors has been found to be an important factor in success when exploring how nurses cope with SpLD (Child and Langford, 2011; Crouch, 2008; Morris and Turnbull, 2007b; Morgan and Chambers, 2004). Overall the studies showed that many nurses with SpLD received low levels of support or no support at all from their managers, while support gained from colleagues was found to be much higher (Morris and Turnbull, 2007b). When looking at mentors, some participants commented on how their mentors had shown them finished paperwork so they had an example to work from or had asked them to observe procedures as a way of providing effective support (Crouch, 2008). Child and Langford (2011) concluded that nursing students with SpLD were more likely to benefit in the clinical environment from having mentors who were aware of and understood the issues surrounding SpLD. During interviews even those students without a known disability who reported experiencing difficulties during clinical placements placed a large emphasis on the importance of clinical mentors (Child and Langford, 2011).

Adults with SpLD may have certain strengths and weaknesses that may influence them towards specific occupation choices (Hartley, 2006). Taylor and Walter (2003) found that

adults with dyslexia are more drawn towards people-oriented professionals such as nursing. Research into hidden disabilities, specifically dyslexia, has shown that it does have effects upon on individual's career progression and development. Research into nursing careers of dyslexic adults by Morris and Turnbull (2007b) reported that participants believed that promotions and progressions within their careers was attainable but that it was likely to take longer than their non-dyslexic colleagues. This study also found that for nurses, having dyslexia caused a lack of confidence in completing further academic study (Morris and Turnbull, 2007b).

Whilst career progression is dependent on the characteristics of the individual, Illingworth (2005) suggested that doctors with SpLD might want to avoid high paced and unpredictable, pressurised environments (such as intensive care or operating theatre) as these could cause high levels of stress and tensions between staff resulting in an unsupportive environment. Also areas with a quick turn over of patients, such as the operating theatre, were found to be particularly challenging due to difficulties reading and remembering patient names and information (Illingworth, 2005). Morris and Turnbull (2007b) found that some nurses preferred acute clinical areas, whereas others favoured much slower paced areas with more relaxed environments that involved smaller teams of staff and lower patient turnover rates. These nurses believed that the higher paced areas would only emphasise their difficulties. Nurses also reported preferring to work on night shifts as this gave them more time to complete written work (Morris and Turnbull, 2006). Post-operative recovery or stroke rehabilitation units were suggested as suitable areas for dyslexic nurses due to having structured care routines, as were areas involving one-to-one patient care such as community nursing (White, 2007). Medical specialties such as General Practice and Dermatology were considered good areas for doctors with SpLD (Roberts et al., 2004).

Conclusion

Despite an increase in the attention given to those with SpLD in the medical profession, the majority of the research literature has focused on nursing with much less attention being paid to medical doctors. Also a large amount of published literature in this area are reports and papers based upon opinion and policy, with few actually conducting any form of study.

Research that has been conducted thus far suggests that SpLD do have an effect upon clinical performance but that this effect can vary significantly between individuals. Some

examples of difficulties include completing written documentation, notes, reading information, remembering information and names, multi-tasking and handwriting. Achieving success in the clinical environment for those with SpLD seems to depend upon having effective coping strategies, support being in place, the individual disclosing their disability and their manager/mentor having enough awareness of SpLD and the ability to support them (Morris and Turnbull, 2007a). Whilst the majority of research conducted involves nurses and nursing students, this does provides valuable information and a basis for further research; however more needs to be established specifically relating to doctors.

This chapter has provided details of the key research literature and provides background to the research studies of this project. The next chapter of this project involves a structured review of the literature specifically concerned with SpLD and members of the medical profession.

CHAPTER 3

STRUCTURED REVIEW

This chapter is a structured review focused on the impact of specific learning difficulties (SpLD) on medical doctors, how SpLD may affect doctors and how they cope in a clinical setting. The review also tried to establish the impact having SpLD has on doctors and their working life, and what factors could influence their career choice and success.

The overall aim of this project is to develop an understanding of how doctors with SpLD are coping in the workplace. This structured review has been completed to systematically review the primary research that has been conducted in relation to doctors with SpLD, to explore the differences amongst studies and to synthesize the data for the relevant studies that address the same areas. Searches of the Cochrane's Library and The Database of Abstracts of Reviews of Effects (DARE) showed no other systematic reviews or structured reviews regarding doctors, or indeed any members of the medical profession, and the effect of SpLD. This confirmed that a review was required in order to establish what research has been conducted and potential areas of further research.

Review question

Deriving from the overall aims of this project, the main research question for the structured review was:

   'Are there any effects of SpLD on doctors in a clinical setting/workplace setting in the UK?'

However this review question was revised very early on in the process of identifying suitable studies for the review (during the scoping search) due to an apparent lack of studies including doctors. Therefore the review question was revised to include other healthcare professionals and students, as well as qualified doctors:

   'Are there any effects of SpLD on doctors and other healthcare professionals or students in a clinical setting/workplace setting in the UK?'

Once relevant and appropriate studies were selected for the review, the information extracted was synthesised in order to address the following questions:

1) Do healthcare professionals/students with SpLD have any difficulties with clinical work?
2) Do healthcare professionals/students with SpLD disclose their difficulties?
3) What support/coping strategies do healthcare professionals/students with SpLD use?
4) Are there any effects of SpLD on a healthcare professionals/students career and progression in the workplace?
5) What are the attitudes towards healthcare professionals/students having SpLD?

Methodology

The review methodology and areas of examination were as follows:

The key terms for the purpose of this review were: 'Specific Learning Difficulty' and 'Healthcare Professional/Student'; these were defined as follows:

- *Specific Learning Difficulty (SpLD)* included dyslexia, dyspraxia, dyscalculia, dysgraphia, attention deficit hyperactivity disorder (AHDD) and Asperger's Syndrome.
- *Healthcare Professional/Student:* Is a person who is a qualified or student: doctor, nurse, midwife, radiographer or dentist. These healthcare professionals were selected as they were considered the ones most similar to doctors, in relation to training, patient contact and workplace setting.

Method of search

The parameters for the structured literature review were set out, and the main question of the research and the inclusion and exclusion criteria for the review were established. The sources that were to be searched were also decided upon. After completing an initial scoping search these results suggested that there should be no time limit set as it was predicted that there would be limited papers that would qualify for inclusion. There were also no language restrictions in place. As stated above, when defining the population to be searched, it was clear from an initial scoping search that there was

little published relating to doctors/physicians so the search was broadened to include other healthcare professionals and students of nursing, medicine and dentistry.

Searches of literature then took place between January 2011 and February 2011, both electronically and by hand, exploring a wide range of journals, reports, books and other formats (see Search strategy below).The criteria for considering studies for this review was developed using the PICO framework (Population Intervention Comparison Outcome). The inclusion criteria for studies for the review were as follows:

- *Types of participants*: any healthcare professional or student with SpLD.
- *Types of studies (study designs*): any primary empirical study designs were acceptable.
- *Type of intervention*: no particular interventions were being examined.
- *Type of outcome*: studies were included if they contained primary research about effects, attitudes, opinions, comments or statistical or descriptive information regarding SpLD from healthcare professionals/students with SpLD based in the UK.

The criteria for excluding studies for the review were as follows:

- *Types of participants*: Anyone who was NOT a healthcare professional or a student with SpLD, such as children.
- *Types of studies (study designs*): any study that was not primary research.
- *Type of intervention*: no exclusions, all interventions were examined.
- *Type of outcome*: studies were excluded if they did not contain primary research about effects, attitudes, opinions, comments, statistical or descriptive information regarding SpLD from healthcare professionals/students with SpLD based in the UK.

Search strategy

The databases and sources to be searched were:
- MEDLINE/PubMed
- PsycInfo (psychology literature)
- Web of Science
- ERIC (Education Resources Information Center*)*

- Academic Search Elite (EBSCO)
- The Cochrane Library
- CINAHL (Cumulative Index to Nursing and Allied Health Literature)
- Science Direct (Elsevier)
- Google Scholar
- Conference abstracts and other gray literature
- Reference lists in primary studies & reviews
- Guidelines, and other related articles
- Study authors, other experts, and manufacturers (to identify unpublished data)

Terms used included each of the following keywords: 'doctor', 'nurse', 'physician', 'clinician' 'medical student' and 'nurs* student'. These were combined with the terms for SpLD such as 'learning difficult*' and 'dyslexia'. This was completed using all the terms for SpLD and doctors and were combined in all possible combinations and were then combined with the setting criteria (see Table 1) using Boolean operators (such as 'AND', 'OR' and 'AND NOT') and Medical Subject Headings (MeSH) were used for PubMed.

Condition	Population
Specific learning difficult*	Doctor
Dyslexi*	Consultant
Dyscalculia	Practitioner
Dyspraxi*	Physician
Learning difficult*	Clinicians
Disabilit*	General practitioner
Reading disabilit*	Healthcare professional
	Medical student
	Nurse
	Students nurse
	Dentist
	Dental students

Table 1: Search criteria for structured review

When completing the search in the electronic databases listed above 6,118 studies were identified that were of possible relevance to the review. When looking at these further, many needed to be re-searched using exclusion terms, as many involved

children and medical professions dealing with those with SpLD (as opposed to having SpLD themselves). Also studies written in English but based in other non-English speaking countries were found however they did not fit in the search criteria, which was limited to healthcare professionals/students with SpLD based in the UK.

This then dramatically reduced the number of studies to 133, which were then screened and marked against the eligibility for inclusion criteria to establish those which were relevant for the review. The majority of this 'screening' process was based upon the abstracts provided in the databases and for those that met the criteria, 56 full text papers were retrieved. Once all the full text studies had been gathered, they were then screened and assessed against the eligibility criteria to ensure that they fully met the inclusion criteria, and were actually primary research rather than reports based upon policies or opinion. In addition to this, the reference lists of all the 56 retrieved articles were hand searched for other potential papers, however no additions were made.

Eligibility criteria

Questions	If yes	If no
Does the study involve healthcare professionals or students with SpLD in the UK?	Continue	Exclude
Is it primary empirical research?	Continue	Exclude
Does the study contain how the healthcare professional/student functions in the workplace or, attitude, opinions, comments or statistical or descriptive information?	Include	Exclude

Table 2: Eligibility criteria for structured review

Once all 56 full papers had been assessed against the eligibility criteria (see Table 2) the final number of papers that qualified for inclusion in this review was 12. Many of these excluded papers were identified as they contained the relevant terms, however they did not have the correct association between them or a large proportion of papers found were written about guidelines or policies around doctors with SpLD. Searches were completed by the lead researcher and the primary supervisor and then a meeting was held to make sure the same studies had been selected for inclusions based on the eligibility criteria. Once any differences had been agreed upon the final 12 papers were

then filed on an Excel spreadsheet for recording and extracting data which has provided the basis for the in-depth review reported here.

An updated search was completed in May 2013 to check for relevant research that had been published since the search was first completed. This led to a further 3 papers being included, increasing the final total of papers included in the review to 15 (see Table 3). Overall there were no studies found that had actually conducted research involving doctors with SpLD.

Due to the methodological heterogeneity between the studies narrative summaries were used to synthesis the data in a structured way to address the review questions outlined above. Narrative summaries are the description and ordering of primary evidence to develop a collective account of this evidence (Dixon-woods et al., 2005).

Results – Studies included

Study No.	Author	Year	Title	Type of study	Participants	Aim/Research Question	Findings
1	Crouch	2008	Needs/experiences of dyslexic students + support in clinical practice.	Semi structured interviews	16 Nursing/midwife students\n\n3 Staff mentors	To evaluate the experience, needs and support available to nursing students with dyslexia.	Difficulties with short term memory, literacy, numeracy and speech were experienced by students and they often developed coping strategies in order to avoid making mistakes. Some of the students were very concerned about disclosing.
2	Crouch	2010	Exploration of the experiences and needs of dyslexic and non-dyslexic nursing and midwifery students, how their needs can best be met by Personal Academic Tutor Support?	Semi structured interviews	7 dyslexic & 15 non-dyslexic Nursing/midwifery students	To explore dyslexic students' experiences of personal tutor support and compare to non-dyslexic students and improvements to be made.	Academic related difficulties were noted by dyslexic students although they were happy with the support they had. There were also differences noted between the support provided from the midwifery and nursing departments.
3	Gibson & Leinster	2011	How do students with dyslexia perform in extended matching questions, short answer questions and observed structured clinical examinations?	Assessment of exam records	17 Medical students with & 74 without dyslexia	What impact does dyslexia have on performance at medical school and do adjustments to assessments affect the outcomes?	Medical students with dyslexia performed differently on the different types of medical assessments. Allowing extra time during these had a positive effect on students' results. Medical students with dyslexia require individually tailored support to successfully meet their needs.
4	Illingworth	2005	The effect of dyslexia on the work of nurses and healthcare assistants.	Qualitative interviews	5 Nurses & 2 Healthcare Assistants (HCA) with dyslexia	Establish the effects of being dyslexic on nurses and HCA and see what can be done to improve their working lives.	Nurses and HCAs work was affected in many ways due to them having dyslexia, such as drug calculations, remembering names and form filing. To support them creating a more 'dyslexia friendly' supportive working environment would benefit and improve their work.

5	Miller et al.	2009	Medical students' attitudes towards disability and support for disability in medicine.	Questionnaire	328 Medical students (18 with SpLD)	Examines rates and types of disability in medical students and explore disclosure and their support needs.	As a result of people not disclosing their disability students were found to have narrow definitions for disability and negative attitudes towards disabilities.
6	Millward et al.	2005	Clinicians and Dyslexia - a computer based assessment of one of the key cognitive skills involved in drug administration	Battery of computerised tasks and self report questionnaire	40 Student & 6 qualified Nurses	Investigate the relationship between dyslexic traits and nurses' performance on clinical tasks designed to reflect those used when administering drugs.	Clinicians with dyslexia might find certain tasks difficult relating to drug administration however further research is required in order to provide a more substantial base for conclusions.
7	Morris & Turnbull	2006	Clinical experience of students with dyslexia	In-depth interviews	18 Nursing students with dyslexia	Explores the clinical experiences of student nurses with dyslexia and potential influences on practice.	Nursing students with dyslexia develop personalised coping strategies to help overcome the difficulties that they experience in the clinical environment. These included voice recorders and writing in capital letters.
8	Morris & Turnbull	2007 b	A survey-based exploration of the impact of dyslexia on career progression of UK registered nurses.	Questionnaire	116 Registered nurses with dyslexia	To explore the effects of dyslexia on the career progression of nurses.	Nurses with dyslexia thought having dyslexia had had a negative effect on their career. They did think that progression was achievable, just that it took them longer to do.
9	Morris & Turnbull	2007 a	The disclosure of dyslexia in clinical practice: Experiences of student nurses in the United Kingdom	In-depth interviews	18 Nursing students with dyslexia	Explores the reason for and against disclosing dyslexia in clinical practice	Factors often related to whether a person disclosed their dyslexia were attitudes of co-workers, concerns about patient safety, expectations of support, confidentiality issues and potential discrimination.

10	Murphy	2010	On being dyslexic: Student radiographers' perspectives	Questionnaire and in-depth interviews	Questionnaire with student radiographers: 14 students with dyslexia & 23 without dyslexia Interviews with 10 students with dyslexia	To explore the clinical experiences of radiography students with dyslexia and the potential impact of this disability on their practice.	There was no difference found between students with dyslexia and students without dyslexia on a self reported scale of clinical tasks. The students felt that support provided in university was much better than support in the clinical departments. This resulted in students with dyslexia taking extra responsibility for their learning and coping strategies to overcome difficulties.
11	Tee et al.	2010	Being reasonable: supporting disabled nursing students in practice	Evaluative case studies & analysis of work by the Student Practice learning advisor	4 nursing students with disabilities (1 dyslexic, 1 dyspraxic)	To evaluate the support put in place for disabled student nurses	In order to implement adjustments in clinical practice to support disabled students and their mentors, a multi-disciplinary approach in required. Support is also required to help establish coping strategies to help overcome potential restrictions.
12	White	2007	Supporting nursing students with dyslexia in clinical practice	Qualitative case study Semi-structured interviews Questionnaire	7 pre-registration Nursing students with dyslexia 11 Support & Teaching Staff 9 mentors	Explore difficulties of student nurses with dyslexia in clinical environments and identify any strategies used.	Student nurses with dyslexia identified areas of difficulty as: dealing with information, performing the role, and administering drugs. In order to develop successful clinical competences, the type of environment and the students' relationship with their mentor were key.
Additional papers added after second search in May 2013							

13	Child & Langford	2012	Exploring the learning experiences of nursing students with dyslexia.	Semi-structured interviews	6 Nursing students with dyslexia & 6 nursing students with no disability	To examine the learning experiences of nursing students with dyslexia during clinical placements to establish ways of improving support in practice.	Sharing placement experiences with others outside the clinical environment may benefit nursing students with dyslexia. Having a placement mentor with knowledge about the needs of those with dyslexia may also benefit students.
14	Ridley	2011	The experiences of nursing students with dyslexia.	Semi-structured interviews	7 Nursing students with dyslexia	To explore the experiences of pre-registration nursing students with dyslexia at one university.	To enable support to be provided, an early diagnosis of dyslexia is beneficial. Support should be based on the individual and tailored to their needs. For some students nurses, disclosing their dyslexia can cause anxiety. The attitudes of others (educators and clinical colleagues) can affect the nursing students' experience.
15	Sanderson-Mann et al.	2012	An empirical exploration of the impact of dyslexia on placement-based learning and a comparison with non-dyslexic students.	(Mixed method approach with 3 parts) Semi-structured interviews x2 and questionnaire	9 interviews with nursing students with dyslexia 7 interviews with Nursing lecturer-practitioners 54 Student nurses with & 52 without dyslexia	Explored the impact of dyslexia on learning in the practice setting.	The difficulties reported by the students with dyslexia varied greatly. Examples such as handovers, dealing with documentation and drug calculations and administration were given. Drug calculations and handovers were difficult for all students with and without dyslexia. Also all students similarly rated placement activities and their feelings towards placements.

Table 3: Summary of the 15 studies used in the structured review

Summary of study characteristics

Each of the study was assigned a number (see Table 3) which has been used to refer to the studies throughout these next sections.

Sources of studies: All of the studies (n=15) used in the review are based in the UK and they were all published between 2005 and 2012.

Samples: Some studies used a range of participants in their sample. Table 4 shows that student nurses were the most commonly explored sample (n=10). Six of the studies included interviews and questionnaires with other professionals: radiography students (10), Healthcare Assistants (4), student mentors (1,12), midwifery students (1,2) and teaching staff (12,15).

Most of the studies (n=10) involved only included one type of participant (i.e. nurses, medical students) and three studies (1,8,10) also included: admissions staff, support staff, clinical mentors, practitioners, lecturers and student practice learning advisors and staff mentors.

Different participant samples used					
	Doctors	**Nurses**	**Medical Students**	**Nursing Students**	**Other Health Professionals or students**
Study ID Number	-	4,6,8	3,5	1,2,6,7,9,11, 12,13,14,15	1,2,4,10,12,15
Type of research method used with different participant samples					
Interviews	-	4, 8	-	1,2,7,9,12,13, 14,15	1,2,4,12,15
Questionnaire	-	6	5	6,15	10,12
Assessment of records/tasks	-	6	3	6	-
Case studies	-	-	-	11,12	-

Table 4: The different participant samples and methods that have been used in the 15 studies

Aims of studies: When examining the aims of the studies involved in this review, eleven studies (1,2,3,4,7,8,10,12,13,14,15) stated that at least part of their aim was to determine the 'experiences', 'effects' or 'impacts' of SpLD on healthcare professionals or student healthcare professionals with SpLD in relations to their work, support or schooling. The studies also aimed to examine the specific issues related to having SpLD such as disclosing SpLD (9) and support (11) and impacts of SpLD on specific clinical tasks (6).

Methodology: The fifteen studies included in the review used both single research and mixed research methods. Ten of the studies used semi-structured or in-depth interviews, five used questionnaires, two were based on exams/tasks scores and there were two case studies (Table 4). There were some variation in the types of methodology used in these studies, however they predominately used single methods of interviews (n=7), questionnaires (n=2) or a mixed method combination of these (n=3), suggesting that these have consistently been considered the most valid and reliable methods to use.

In relation to validity and reliability of data, only one study (7) discussed the validity of the data coding for their interview transcripts and one study (6) using standardized tests as part of their research did discuss their reliability and the alpha coefficient of reliability for their sample. Pilot tests were completed for two studies (6,8) and one section of a study was piloted in another (1). One study (5) had their colleagues (who were not involved with the study) review the questionnaire prior to using it.

A weakness found in the reviewed studies was that thirteen only focused on one medical school, institution or geographical area (1,2,3,4,5,6,7,9,11,12,13,14,15) making it difficult to generalize the results to other related populations. Four of the studies (3,5,12,13) commented themselves that this was a weakness of their study.

In addition to conducting research with participants with SpLD, seven of the studies (2,3,5,6,10,13,15) had also completed research with participants without SpLD, which enabled comparisons between those with and without SpLD.

The majority of the studies involved healthcare students and not qualified healthcare professionals. Using this type of participant does have some similarity to qualified staff, however there are also major difference between those who are qualified and those who are still learning.

Integration of findings by narrative

A narrative summary of findings of all the studies included in the review was completed and then synthesised to provide an answers to the research questions.

1. Do healthcare professionals/students with SpLD have any difficulties with clinical work?

One of the most regularly commented on themes throughout this review related to the difficulties healthcare professionals/students experienced with clinical performance. This was explored in thirteen (1,2,3,4,5,6,7,8,10,12,13,14,15) of the fifteen studies. The most frequently reported difficulties were completing written documentation, spelling, notes, reading information, remembering information and names, multi-tasking and handwriting. The requirement for additional time was also a common factor and many participants in the studies reviewed reported that their work took them longer to complete than their non-dyslexic peers (1,2,4,7,8).

Related to clinical performance difficulties was the potential for errors. Six (1,7,8,10,14,15) studies reported that participants were very aware of the possibility of making a mistake. In eight studies (2,6,7,8,10,12,13,15) it was found that participants reported extensive checking and rechecking of the accuracy of their work, to ensure it was correct and prevent errors.

All of the studies concluded that SpLD did have some impact upon clinical performance or work for healthcare professionals/students.

2. Do healthcare professionals/students disclose their difficulties?

The issues surrounding the disclosure of SpLD were reported in ten (1,2,3,7,8,9,12,13,14,15) of the studies. A common theme that appeared regarding disclosure was the issue of selectivity, with many of the reviewed studies reporting that participants were selective in whom they disclosed their disability to (5,8,14,15).

Throughout the studies, there appeared to be a large number of participants in each study who for one reason or another, from different healthcare occupations, chose not to disclose their disability. These participants held a belief that there would be a lack of understanding from their peers/colleagues/others (13) and concern that they would be laughed at (8).

Research concerning nurses and students nurses, the relationship that they had with their mentors seemed to play a significant role in their decision to disclose SpLD (1,9,12,14,1 5). The participants were less likely to disclose if their mentor was found to be critical or patronising (1,9) and some feared being treated differently (1) and students were concerned about disclosing when on clinical placements (14). One study (13) found that dyslexic nursing students would prefer their university to inform students' clinical placements about their SpLD before the student starts, so that they students does not have to disclose it themselves and the placement has time to prepare.

Four studies indicated that the reason why most participants had disclosed their SpLD was in order to receive support (1,7,8,9) or to reduce error risk and ensure fitness to practise (9,7).

3. What support/coping strategies do healthcare professionals/students with SpLD use?

A large number of the studies (n=14) reported on both support given to those with SpLD and the coping strategies that people use in clinical and educational settings (1,2,3,4,5,6,7,8,10,11,12,13,14,15). In three studies the level of support available was affected by a lack of willingness to disclose the disability due to the stigma associated with diagnosis of SpLD (1,4,7).

Studies involving students (1,3,5,7,10,12) found that in terms of support, many were given extra time during examination and assignments; the reviewed studies indicated that this was beneficial to students with SpLD. In one study (12) it was concluded that laptops were not a suitable form of support in the clinical setting for reasons including worries over the equipment's safety and insufficient training. In contrast, another study (10) found technology to be the best type of support, such as the use of iPods, spell-checkers and on-line resources etc. In the clinical environment, clinical contracts were found to be a useful

form of support in two studies (10,11); these outlined the expectations of students and staff and any adjustments were formally noted, along with support groups.

Three studies (1,8,14) in the review found support from managers and mentors was weak or lacking altogether. Healthcare professionals found their colleagues to be much more supportive (8,12). Findings from three of the reviewed studies suggested that support from mentors and tutors appeared to be an important factor in the success of coping strategies employed by students and staff (2,11,13).

Many (1,2,3,4,7,8,10,12,13,15) of the studies found that people with SpLD develop individual coping strategies to help them in the workplace. The following were strategies reported in the reviewed studies: using a 'reminder pad', voice recorders for taping handovers, practicing clinical skills out of hours, using coloured paper and overlays and going to quiet environments to complete written tasks (4,7,10,12,13). Four studies (4,8,12,13) found that stress could affect the successfulness of such coping strategies, in addition to exacerbating participants' difficulties in the clinical setting in the first place. Three studies reported participants describing avoidance strategies (1,7,12) whereby participants try to avoid aspect of their work where they have difficulties.

4. Are there any effects of SpLD on a healthcare professionals/students career and progression in the workplace?

Three studies commented on the effects of SpLD on career progression on healthcare professionals (4,8,12). Two of these studies (4,8) found that dyslexia did have an impact upon career progression, with some participants in one study viewing this as a negative impact due to causing a reduction in their self confidence (8).

In four of the studies (4,7,8,12) areas of work which those with SpLD might like to avoid were explored. Studies found that those with SpLD suggested avoiding fast paced unpredictable areas which might magnify their SpLD related difficulties (4,7,8,12). Three of the studies (4,7,12) reported that areas considered more suitable to those with SpLD had slower paced environments that involved smaller teams of staff with lower patient turnover rates and had structured routines and protocols. One study (4) reported that healthcare students preferred longer placements with minimum levels of written work.

5. What are the attitudes towards healthcare professionals/students having SpLD?

Exploring the studies for data concerning attitudes to disabilities in the medical profession and awareness of disabilities revealed that seven studies (1,5,6,7,10,12,14) had reported such data. In one study (5) 75% of medical students respondents reported that some disabilities would prevent the study of medicine and the 80% thought it would prevent working as a doctor.

When examining how people felt about being diagnosed with dyslexia, three studies (1,4,7) reported that participants felt that it had a negative impact on their confidence, self esteem and self image which increased their stress levels and impacted on their clinical performance. Two studies (4,12) found that creating or working in a 'SpLD friendly' environments was considered important for ensuring participants felt comfortable to ask for help or support. A number of the reviewed studies (1,2,5,7,10) reported that those with SpLD did not want to be seen as 'different'.

Awareness of disabilities within the medical profession was discussed by three studies (7,10,14) and all felt that greater awareness of disabled students was needed to ensure appropriate support is given and to help guarantee patient safety.

Discussion

This review evaluated 15 primary studies involving professionals/students within the healthcare profession with SpLD using a structured format. The findings of this review indicate that there has been an increase in the attention given to those with SpLD in the healthcare profession as all the studies eligible for this review have been completed within the last 10 years. The majority of the research eligible for inclusion in the review has focused on nursing students; none of the studies in the review had included doctors in their sample. The majority of the papers identified that had been written about doctors with SpLD were reports or based upon opinion and policy, with none actually conducting any form of primary research; as such they were not eligible for inclusion in the review.

Only 2 of the research papers identified and eligible for this review involved medical students. These explored issues of disclosure and support for students and also support and attitudes towards medical students and doctors with SpLD. Despite the majority of

research being conducted involving nurses and nursing students; this still provides valuable information and a basis for further research with other healthcare professionals as there are some similarities in their work. However there is a need to explore if the issues identified in these papers are relevant for doctors, and what additional issues arise that are specific to doctors.

Overall the studies in this review suggested that SpLD do have an effect upon clinical performance, but that this effect can vary significantly between individuals. The studies covered a number of areas effecting healthcare professionals/students. One of the most reported areas was in relation to the support provided for, or coping strategies used by, healthcare professionals/students with SpLD. The findings of the review indicated that many of those participants with SpLD working in a clinical setting had developed personal coping strategies to help them overcome any difficulties. Another frequently reported finding was healthcare professionals and students reporting extensive checking and rechecking to ensure the accuracy of their work. Several of the studies from the review reported on support, particularly extra time during examination and assignments; which were concluded to be beneficial to students with SpLD.

The majority of the studies had also addressed areas of disclosure with healthcare professional/students with SpLD The reviewed studies suggest that decisions as to whether or not to disclose SpLD are driven by a number of factors, including availability of support from senior staff and colleagues.

Within the studies included in this review the potential for bias should be noted, as often those studies that have negative results will often not be published (Mulrow and Cook, 1998). In professions such as medicine and nursing, these roles are constantly changing therefore it is important that the research studies chosen for this review mirror their current working environment. Also all of the studies included in this review could be considered relatively recent studies, with publication dates ranging from 2005-2012; this means that they have all been published under the legislations of the Disability Discrimination Act 1995 – 2010 and then the Equality Act from 2010 onwards. However the dates of when the studies were actually conducted is not given.

The main limitations of the studies in terms of methodology was that the majority focused on one location and the majority were conducted with nursing students; therefore, it is still unresolved if the issues found in this review are also the same for doctors with SpLD.

When completing the initial searches for studies, it was found that very little research has been conducted with medical students, and none with doctors. Thus, further research is required to establish if doctors with SpLD are affected in the workplace and if they use support, did they chose to enter certain specialties over others, if they had support during medical school, what support is appropriate and if it does it affect their fitness to practise.

Conclusion

This chapter reports a structured review of all qualitative and quantitative research studies involving healthcare professionals/students with SpLD. Published research has addressed the areas of interest that this research project is exploring (i.e. the issues of disclosure, coping strategies etc) however no primary research has been conducted with medical doctors yet. Thus, the existing research can provide a basis for this research project, but there is a need to explore whether the issues identified with other healthcare professionals with SpLD are valid for doctors with SpLD and what additional areas exist that are specific to doctors.

Also the above research indicates that where those in medical and nursing schools are receiving some support for the difficulties, there is a fear of how they will cope when qualified as some of the adjustments made for them are not reflective of a clinical setting. Most research into SpLD shows that stress can exacerbate dyslexic difficulties, therefore as being a doctor is one of the highest stress-related jobs, research into how doctors are coping, what they are doing to cope, factors that influences disclosure and ways to potentially improve this need to be identified.

Overall there is a distinct lack of research regarding doctors with SpLD and their fitness to practise. The next chapters in this thesis move on to the studies conducted as part of this project which aims to address some of the gaps demonstrated by this review.

CHAPTER 4
OVERVIEW OF METHODS

The purpose of this research project is to explore how doctors with specific learning difficulties (SpLD) are coping in the workplace. This has been completed by investigating the impact of SpLD on the daily working practice and career choices of doctors in order to broaden knowledge in this area and also to aid future medical students and doctors with SpLD. The results from the literature review and the structured review showed that there is a lack of existing research in this area; therefore this current project is designed to address a gap in the literature and represents an important area of work.

The overall aim of this project is to develop an understanding of how doctors with SpLD are coping in the workplace. This aim was then broken down into the following sub-aims:

1. To identify what difficulties doctor with SpLD may perceive they have in the workplace.
2. To identify what strengths doctors with SpLD may perceive they have in the workplace.
3. To ascertain what coping strategies and support doctors with SpLD have in the workplace and how successful it is.
4. To explore perceptions of doctors with SpLD held by both doctors with and without SpLD.
5. To identify reasons for and against the disclosure of SpLD by doctors to both patients and colleagues/peers.
6. To establish if having SpLD has an effect doctors' career choices.

In order to address these 6 sub-aims a combination of research methods was used in a series of studies which formed the overall project. Mixed methods approaches are being increasingly used in research and have been recognised as the third major research approach after qualitative and quantitative approaches (Johnson et al., 2007; Doyle et al., 2009, Creswell, 2013). This type of methodological approach involves the collection of both quantitative and qualitative data in the hope that the combination of

the methods will maximize strengths and minimize the weaknesses of each approach in order to answer the research questions (Creswell, 2013).

The instrument development model (Schifferdecker and Reed, 2009) has been employed in this project, whereby qualitative data (interviews) were gathered with the aim of developing a quantitative measure (the questionnaire). This meant that the quantitative measure is based upon experiences, views and language of participants, as opposed to being based exclusively on the standpoint of the researcher. Schifferdecker and Reed (2009, p637) stated that 'when studying new questions or complex initiatives in natural settings, mixed method approaches may prove superior in increasing integrity and applicability of the findings'. Therefore pilot interviews were conducted (Pilot A detailed in Chapter 5) in order to develop a questionnaire, which was then itself piloted (Pilot B detailed in Chapter 5) in order to be used as a national questionnaire in Study 1 (detailed in Chapter 6). The questionnaire was then followed by interviews with doctors with SpLD to further explore the findings of the questionnaire from the perspective of doctors with SpLD (Study 2, detailed in Chapter 7). This then led on to a follow-up questionnaire with medical students, as results from the first two studies indicated that this was a population that maybe particularly affected by the impact of SpLD (Study 3). A full breakdown of the project can be seen below in Figure 1.

A mixed methods approach was determined to be the best to address this project as questionnaires enable data collection from a large number of participants and enable statistical comparison between different groups of participants (doctors with and without SpLD). Questionnaires also offer an objective means of collecting information about people's knowledge, beliefs, attitudes, and behaviours (Gilbert, 2001). Building on from this, interviews provide more detailed and descriptive responses and also enable the clarification of answers provided by participants (Gray, 2009). Semi-structured interviews were used to enable participants with SpLD to discuss any issues that they have had as a working doctor as a result of their SpLD in more depth and to bring up any issues that may not have been adequately covered in the questionnaire. More details of these methods are discussed in below.

Using different methods of data collection and from different medical groups has also provided methodological triangulation of data, which helped validate the results found

and helped in ensuring defendable and accurate data. Methodological triangulation also helped to overcome any weaknesses that a particular research method had (Gray, 2009) and is based upon the assumption that any inherent bias in the research will be 'neutralized' when used in combination with other research methods (Creswell, 1994) helping to increase the validity of the data and in ensure that the findings are true and accurate.

Breakdown of project

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┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│ Literature and  │      │    Pilot A      │      │ Pilot interview │
│ structured      │ ──▶  │                 │ ──▶  │ results and     │
│ reviews help    │      │ Interviews with │      │ current         │
│ develop         │      │ local General   │      │ literature used │
│ interview       │      │ Practitioners   │      │ to create       │
│ questions       │      │                 │      │ electonric      │
│                 │      │                 │      │ questionnaire   │
└─────────────────┘      └─────────────────┘      └─────────────────┘
                                                           │
                                                           ▼
┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│    Study 2      │      │    Study 1      │      │    Pilot B      │
│                 │ ◀──  │                 │ ◀──  │ Electronic      │
│ Telephone       │      │ National        │      │ questionnaire   │
│ interviews with │      │ electronic      │      │ piloted for     │
│ doctors who     │      │ questionnaire   │      │ feedback via    │
│ have an SpLD    │      │ with all        │      │ UEA doctors on  │
│                 │      │ doctors         │      │ Recognised      │
│                 │      │                 │      │ Teachers        │
│                 │      │                 │      │ Database        │
└─────────────────┘      └─────────────────┘      └─────────────────┘
         │
         ▼
┌─────────────────┐
│    Study 3      │
│ Electronic      │
│ questionnaire   │
│ with UEA        │
│ medical         │
│ students        │
└─────────────────┘
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Figure 1: Flow of the research project and the studies involved with it.

Overall project

The overall aim of this project was to investigate how medical doctors with SpLD coping in the workplace and the possible effects this could have on their clinical practice. This was completed through the use of an electronic questionnaire which was

sent out to doctors nationally and interviews. To ensure that the questionnaire was appropriate and would provide data that would answer the research aims, the instrument development model described above was followed whereby pilot interviews were conducted in order to help determine the content of the questionnaire. A breakdown of the pilots and studies involved with the project are described below followed by details of the methods used to conduct them.

Pilot A - Interviews

Examination of the literature indicated that an appropriate questionnaire for Study 1 did not currently exist in the literature therefore one needed to be created. The first step was to conduct pilot interviews. The pilot interviews helped to identify those areas which were important, as well as those that were of value for further investigation in the questionnaire being developed for Study 1. The pilot interviews were also a way of establishing if there were any potentially sensitive areas for participants that would need to be carefully handled in the questionnaire. Additionally, it acted as a feasibility study to ensure that this was a viable study and worthy of research (Van Teijlingen and Hundley, 2002). Researchers have been encouraged to report their findings from pilot studies and in particularly to report the subsequent changes to their methodology as a result of the pilot (Van Teijlingen and Hundley, 2002); this is discussed in the final sections of Chapter 5.

Pilot B - Developing the questionnaire for Study 1

Along with information gained from a literature search, the results from the pilot interviews were used to create the main questionnaire for Study 1. This questionnaire was then itself piloted. There are a number of reasons why it is important to pilot a questionnaire before the actual study. Piloting can identify items that are potentially ambiguous or lacking in clarity (Rattray and Jones, 2007) and enables changes to be made where appropriate to improve validity of the questionnaire. It can also help to identify misleading questions, and check if participants are interpreting the questions in the way the researcher wants them to, thus helping to reduce bias (Gray, 2009). As such, the questionnaire designed for use in Study 1 was piloted to ensure that it was suitable for the potential participants and that the questions were appropriate and clear.

Study 1 - Online questionnaire

Following development and piloting, the new questionnaire was used nationally to gain a wider perspective on how medical doctors throughout the UK are coping in the workplace. This study extended previous research with other health professionals and students, to examine the experiences of doctors. Unlike previous research it was not limited to one location; instead it involved doctors from across the UK, which was possible by having doctors complete the questionnaire online. Additionally, the study involved both doctors with and without SpLD, so that comparisons between the two groups could be made on various measures to explore if there were differences in their views and experiences.

Study 2 - Interviews

Extending Study 1, semi-structured telephone interviews were conducted with medical doctors throughout the UK who had been diagnosed with SpLD or suspected that they had SpLD (Study 2). This study aimed to expand on the results that were gained from the questionnaire (Study 1) in order to develop a deeper understanding of what it is like to be a qualified doctor with SpLD in working in the UK.

Study 3 - Follow on questionnaire with UK medical students

Study 3 was a follow on study that was added to this project after the initial data for Study 1 and Study 2 was obtained. The preliminary results suggested that SpLD do have both positive and negative effects on doctors, with factors such as competitive environments having a particular impact on these effects. These findings indicated that those in the very early stages of their medical career or medical students maybe particular effected by their SpLD. As a result of these findings, and because there is currently no specific research available regarding how medical students with SpLD cope in both in a classroom and in a clinical environment Study 3 was developed. This used an electronic questionnaire (similar to that in Study 1) to explore how medical students with SpLD are potentially affected by SpLD and to establish if there are any differences between the views of medical students with and without SpLD regarding how they are coping in a university and clinical setting.

Main Research Methods Used

Interviews

Interviews have been chosen as the most appropriate methods for Pilot A and Study 2; the reasons for this decision will be outlined here. An interview is a style of conversation between people where one is the researcher trying to find information from others (Gray, 2009). Interviews are a widely used research method. Qualitative interviews are often a successful way of gaining 'rich, in-depth data that illuminates our understanding of complex social, behavioral and education issues' (Reeves et al., 2006, p.291). Interviews offer flexibility and the opportunity to vary questions and follow up on interesting responses given, and the chance to investigate underlying causes and motives. They also give respondents the opportunity to clarify any queries or misunderstanding that they may have, which they cannot do in a questionnaire.

Additionally, interviews provide the opportunity for participants to discuss their responses to both pre-determined questions and other topics that may arise during the course of the interview. Using interviews allows participants to express their views, concerns or opinions as freely as possible without imposing the researcher's view; therefore avoiding bias and achieving greater reliability in the findings. Interviews can also be used to obtain both qualitative and quantitative data as opposed to other research methods such as observation where data would likely be qualitative (Gray, 2009).

Interview approaches

There are a number of different types of interview approaches, varying in the degree of structure in which they are conducted. The choice of interview style depends on the aims of the research.

'Structured interviews' involve the use of a rigid list of questions or interview schedule where only the questions written on that sheet are asked and not deviated from. This type of interview is often used for market research purposes where the same questions in the same style are asked to different respondents (Fielding and Thomas, 2001).

'Semi-structured interviews' or in-depth interviews have a highly specialised but more conversational style (Howitt and Cramer, 2008). This style also uses an interview schedule to keep some consistency during the interviews however there is more flexibility in its use, also additional questions, use of probing and asking for explanations of respondent's answers are allowed. Having this flexibility in the use of the schedule means that the researcher can ensure that the interview will cover the content required, while also allowing for new themes and pathways to be discovered.

'Unstructured interview' or focused interviews are where a researcher will have a list of questions that they would like to talk about, however the order in which they are asked or how they are phrased is up to how the researcher deems appropriate at the time. Respondents are encouraged to talk openly and freely, which can result in more varied responses and data.

A semi-structured interview format was used to conduct the interviews in both Pilot A and Study 2. Semi-structured interviews were determined to be the best type of interview to use. Structured interviews do not have the flexibility to elaborate on responses that come up during the course of the interview, and unstructured are often conducted in naturalistic settings and are more like conversations, which may not cover some of the areas highlighted during the questionnaires. In contrast, semi-structured interviews contain some structure so that the researcher is able to ensure that certain topics are discussed with all the participants, ensuring that all key areas are covered, whilst allowing the interviewer the flexibility to expand on responses or explore any new areas raised by individual participants. Gray (2009) explained how through this more flexible interview process, participant's responses may be probed which can enable the discovery of new topics and areas not previously covered by the interview schedule. This was particularly important for the Pilot A as the schedule was based on research with other healthcare professionals, rather than doctors. Therefore allowing the flexibility for participants to raise new topics meant that issues salient for doctors that had not previously been noted in the literature could be raised in the interview. Interview schedules (Pilot A) were utilised to structure the interviews and facilitate in-depth exploration of the participants' experiences and allow participants to talk as openly as possible. The interview schedule for Study 2 was based on the results from Study 1 and previous research. This helped ensure that the questions on the interview schedule were appropriate for the study and would provide suitable data to answer the

research question. Prompts such as 'can you elaborate on that' or 'can you give an example' were used to help expand the details given by the participants.

Types of interview

Interviews for the pilot study were conducted using a face-to-face approach. This is where the interviews are conducted in person with the interviewer and interviewee in the same place. Face-to-face interviews were chosen as the most appropriate method for the pilot study as this style of interview allows for all forms of communication to be noted, including nonverbal cues, body language and subtle nuances. It was also logistically possible for Pilot A as it only comprised a small number of interviews conducted locally.

Whereas the interviews for Study 2 were conducted using the telephone as respondents from across the UK were eligible to participate in this study. Thus, telephone interviews ensured that anyone who wished to participate could, and they were not excluded due to geographical location. It also enabled more flexibility in where the interview could be conducted, as interviewer and interviewee did not need to get to the same place at the same time, allowing respondents to participate more easily around their other commitments. Telephone interviews were determined to be most appropriate method of interviewing for Study 2 as they have been found to be an effective method of gathering potentially sensitive data (Tausig and Freeman, 1988); some participants feel telephone interviews increase the sense of anonymity especially when discussing a potential sensitive topic and thus, may improve data quality (Sturges and Hanrahan, 2004). They also enable the researcher to follow up on interesting responses and to clarify points (Gillham, 2000), whilst still allowing access to potential participants across the UK.

It has been suggested that during telephone interviews the interviewees tend to stay more focused on the topic of research, resulting in more useable data in an effective time period (Gilbert, 2001). Doctors are often very busy people, potentially working in shifts and with a high work load. Using telephone interviews means that they could choose a time and place that suited them without taking up too much of their time organising a visit or location for the interview, as would have been necessary with face-to-face interviews. It also meant that their location in the UK was irrelevant and that the

researcher could be more productive as it would be possible, for example, to interview a doctor in London in the morning and a one is Edinburgh in the afternoon. This was also an important factor in trying to attain results that could be more generalisable to all doctors throughout the UK and not just to those based in one institution or geographic area. Telephone interviews will also increase researcher safety, and as there is no need to travel to the participant's location and it is also an efficient and cost effective way of collecting data (Miller, 1995).

There are some disadvantages to conducting telephone interviews over face-to-face interviews. One such disadvantage is that the interviewer cannot see the participant's nonverbal communication (Creswell, 1994). Gilbert (2001) stressed how it is important for researcher to be able to keep an effective line of communication going without having a personal face-to-face relationship and without being able to pick up on non-verbal communication, such as face expressions and body language. Secondly, using the telephone interviews enabled participants to pick a location where they feel safe and comfortable, allowing them to talk freely in the interview environment; without this freedom to speak the integrity and accuracy of data could have been compromised. However this meant that the researcher had no real control over where the respondent is when they are being interviewed. Thus it is difficult to account for environmental factors, such as possible distractions and privacy issues.

Recording and transcribing data

When conducting interviews it is critical that data are recorded accurately. This can be completed by taking notes, but this is time consuming and often is not a very accurate process; so it is often better done in combination with another form of data recording such as using a digital voice recorder (Gray, 2009). Recordings were taken during Pilot A and Study 2, as opposed to note taking. Blaxter et al. (1996) explains that being able to focus on asking the correct questions, while listening to the answers and responding accordingly while taking notes can be a rather testing task. Using a voice recorder is the recommended method for capturing accurate data (Gilbert, 2001; Gray, 2009). This ensures that both sides of the interview are recorded accurately and enables the interviewer to concentrate and focus on the interviewee and not worry about writing copious notes. It is important to note that interview participants should always be aware when they are being recorded (Gilbert, 2001).

A disadvantage of using a recording device is that participants may feel anxious about being recorded, which may mean they are more cautious when answering potentially sensitive questions. As a way of helping overcome this disadvantage with the participants in Pilot A and Study 2, the reasons behind using the recording device were explained and assurances were provided during the initial introductions that in the long term it would actually result in more accurate and detailed data and that it is quite normal for people to feel anxious about being recorded. Also it was explained that after the interview it would only be the interviewer, as the lead researcher, who would be listening to the recordings when transcribing them and that the recordings would be stored in a secure filing cabinet until they had been transcribed and analysed. At the end of the research period all data would be archived for a period of 10 years, and then securely disposed of after this time.

Transcription is another disadvantage of recording interviews as it is a very time consuming process; although if the researcher transcribes the interviews themselves, it does allow them to become very familiar with the data which is advantageous when it comes to the analysis. It is important that transcripts are written as accurately as possible to provide a full, detailed account of the interview where hopefully no data have been lost.

Questionnaires

As part of this project a questionnaire has been develop for Study 1 in order to answer aims set out above at the beginning of this chapter. The specific details of the development and piloting of this questionnaire is discussed in Chapter 5. In this chapter the questionnaire methodology will be discussed.

A questionnaire is a systematic instrument designed for 'gathering structured information about people' (Coolocan, 1990, p.94). Questionnaires are widely used in research; they can come in various forms and can be used for a variety of research purposes, such as gathering information on experiences and opinions for market research, or testing before and after effects for scientific research. Questionnaires can be used as a single research method in a study or in combination with other methods such as interviews or case studies.

Questionnaires can be either 'interviewer administered', whereby the researcher asks the participants the questions either via focus groups, structured interviews or telephone questionnaires or they can be 'self-administered' (Gray, 2009). For 'self administered' questionnaires the participants are given the questions to answer for themselves; they are often completed by hand on paper via postal questionnaires, or online to gain a range of information from various populations (Bowling, 2005). Self-administered, online questionnaires were selected for use in this project.

There are many advantages to using questionnaires as a method for gathering data and these advantages could account for their popularity in research (Gray, 2009; Hunter, 2012). One of the main advantages of questionnaires is that they are low cost in relation to both money and time (Wright, 2005). They can be sent to very large samples of participants and do not require the researcher to be physically present when the participants are completing them. This means that the participants can be located anywhere in the world, and the use of questionnaires can result in gathering a large amount of information from multiple participants rapidly. They are also potentially more 'participant friendly', in that participants can complete them at a time and location that best suits them, causing them as little inconvenience as possible (Gray 2009). This also means that while the researcher is waiting for the responses for the questionnaires they can be working on other research tasks, enabling them to use their time effectively.

However a drawback to questionnaire use in this fashion could mean that data collection appears slightly impersonal, particularly if the questionnaire concerns a sensitive subject or asks particularly personal questions; under such circumstances the questionnaire could be found to be quite cold, which therefore could result in participants not completing it (Gray, 2009). However completing a questionnaire without seeing the researcher also enables a stronger sense of anonymity and therefore participants could be more likely to complete the questionnaire, provided that it is designed and worded well (Gillham, 2000).

If the questionnaire appears confusing, unappealing or too long, then participants could be apprehensive about taking part and reduce the likelihood of participants completing it, which is why the design of the question is important (Gray, 2009). The

questionnaire's design is significant in ensuring that participants understand and interpret the questions accurately, so that the responses are completed correctly and valid data is obtained. Many people with SpLD do not like form filling (Lee, 2000), so it is important that the design of the questionnaire is a good as possible, to encourage all types of participants to participate.

Electronic questionnaires

With modern changes in communication, distributing questionnaires online is a growing method of data collection (Buchanan and Smith, 1999; Greenlaw and Brown Welty, 2009; Hunter, 2012). Most organisations, groups, societies, affiliations and charities now have some sort of online presence offering things such as information, news, advice or guidance for its members. This is potentially a very quick way for researchers to access and contact certain groups of people specifically related to their research and ones that could otherwise be very difficult to access or those who may be more reluctant to meet face-to-face with a researcher (Wright, 2005). Using the internet to email potential participants is now a productive method of conducting questionnaires and is much lower in both time and financial cost to the researcher (Wright, 2005). Online questionnaires have been found to be equal to paper-and-pencil formats in relation to both reliability and internal validity (Buchanan and Smith, 1999).

Furthermore there are now survey software and questionnaire templates available online which means that it is quick and easy to transfer questionnaires online without having to be particularly technically minded (Jones et al., 2008). Another benefit of using online survey software is that it works in real time, so the researcher can see results coming in and then export them in to their chosen statistical software programme (Wright, 2005).

In order to ensure that the participants complete an electronic questionnaire, Hunter (2012) suggested that it is important that the questionnaire itself should be simple to gain access to and potential participants should be carefully selected and aware of their value to the research. For this study participants were sent an email with a direct link to the questionnaire, making it easily accessible.

Using an online questionnaire in for Study 1 enabled doctors all over the UK to take part if they wished, at a convenient time for them. Completing the questionnaire online may heighten participants' sense of anonymity, which could help increase participation rates, in that participants may feel more comfortable answering personal questions about their performance at work and how they feel they are coping and difficulties that they may have than if the researcher were present.

One of the reported criticisms of using electronic questionnaires is that the results gained from them will be less reliable and less generalisable, as they will only be gained from respondents who are computer literate and so would not represent the general population (Jones et al., 2008). However the sample required for this project would all be required to be competent in using computers as part of their job role and so this criticism does not really apply.

Another disadvantage of using electronic questionnaires suggested by Buchanan and Smith (1999) is that there is no personal interaction between the researcher and the participant, meaning that the participant's status cannot be verified or the honesty of their response calculated. Additionally, the environment in which they completed questionnaire cannot be controlled. However, this is also true for postal questionnaires and if an online questionnaire had not been used a postal questionnaire would have been the most viable alternative given the desire to recruit participants nationally in the UK.

The following four chapters describe the pilot studies followed by the main research studies 1, 2 and 3 that were conducted to address the research area.

CHAPTER 5

PILOT A

The aim of Pilot A, in combination with information from the literature review, was to identify key areas that should be included in the Study 1 questionnaire. Therefore semi-structured pilot interviews with 3 General Practitioners (GPs) who had either been diagnosed with SpLD or suspected that they had SpLD were conducted.

The interviews

A semi-structured interview style was used for Pilot A. An interview schedule (Appendix 1) was utilized to facilitate an in-depth exploration of the participants' experiences. This schedule contained 11 questions concerning areas of interest based upon previous research literature (see Chapters 2 and 3) exploring how SpLD have affected other healthcare professionals and students. The interview questions explored areas including the affect of having SpLD on work with questions such as "Do you feel like having SpLD, such as dyslexia, impacts on your work as a doctor?", and "How does it affect you in a workplace setting?", and also disclosure of disability, e.g. "Have you disclosed disability and why?".

Recruitment

A recruitment email (Appendix 2) was written and sent to all those on the Recognised Teachers mailing list at Norwich Medical School. This is a database of people who are involved in teaching undergraduate medical students. The email informed recipients about the study and invited them to contact the researcher if they were a qualified General Practitioner (GP), who had or suspected that they had SpLD, and were interested in participating in an interview. Attached to the email was a participant information sheet (Appendix 3), which included full background information about the purpose of the research and what would be involved in taking part. The participant information sheet used the format recommended by the National Research Ethics Service (2007) and was set out as a question and answer sheet such as:

1. Who will be taking part in the study?

2. Do I have to take part?

3. If I do decide to take part, what will I have to do?

4. Are you testing my knowledge in some way?

5. Will my responses be kept anonymous?

6. What will happen to the results?

Detailed answers were then given under each of the questions and potential participants were also asked to contact the researchers if they had any other queries or concerns. It was recognised that participants may become upset or distressed through participating in the interview as this could have been a sensitive subject for them that they have not discussed before. As indicated by the findings from the literature review regarding disclosure issues, their SpLD might have been something that they had struggled with and tried to keep hidden due to feelings of embarrassment or shame. Therefore information regarding dyslexia organizations and services were provided on the invitation email and information sheet for participants if they wanted to seek advice or support information.

Participants

Inclusion criteria: Anyone who had a diagnosed SpLD or suspected that they had SpLD and was a fully qualified General Practitioner and had been employed for at least 6 months since qualifying. This was to ensure that the participant had the experience of working independently in a medical setting to base their answers on.

Exclusion criteria: Anyone who did not have a diagnosed SpLD or suspected that they had SpLD and who was not a fully qualified General Practitioner or who had not been employed for at least 6 months since qualifying.

This project has included those doctors who suspect that they have SpLD, in addition to those who had been diagnosed with SpLD. This has been done as there is no consistency in testing or diagnosing dyslexia or SpLD, and this project is not concerned

about whether or not dyslexia exists, or who fits in to one of many definitions for SpLD/dyslexia or whether or not a person has a label of dyslexia. This project has been based on the fact that there are a group of people who experience unique challenges when faced with today's literacy-based society (Tanner, 2010). Indeed, White (2007) noted that a limitation of their work was that 'it is likely that some individuals were excluded because they chose not to disclose' (White, 2007, p41). As a result of not including those with suspected SpLD Ridley (2011) explained that in their study with dyslexic nursing students there were no first year participants, potentially due to the assessment processing taking so long to complete. Therefore for these reasons it was considered important that those who suspected that they had SpLD were eligible for inclusion in all three of this project's studies. This is further discussed in Chapter 9.

Using both purposive (participants who would be most appropriate for the pilot) and convenience (participants who are conveniently accessible) non-probability sampling methods, GPs were selected for the Pilot A as the research team had access to a suitable database and mailing list for recruiting participants and also held good relations with local general practices. Additionally, some GPs are often on site at Norwich Medical School, making it convenient for them to participate.

Ethics

For Pilot A ethical approval was applied for from University of East Anglia's (UEA), Faculty of Social Science, School of Education and Lifelong Learning Research Ethics Committee. Once ethical approval had been obtained in June 2010 (Appendix 4), the recruitment invitation email was sent out through the Recognised Teachers database.

Another benefit in using general practitioners in Pilot A was because they are not employed by the NHS and therefore ethical permission gained from the UEA ethics committee was sufficient to be able to conduct this pilot. At the time of this pilot study, NHS ethical approval would have been required to involve any NHS staff including secondary care physicians in a research study. Gaining NHS ethical approval can be an extensive process and so for the purposes of a small scale pilot study, it was hoped to be avoided (more information on this is given in Chapter 6).

Procedure

Interview arrangements were made for those GPs who responded to the recruitment email and wished to participate. Environmental factors, such as possible distractions and privacy were taken into consideration when planning the timing and location of the interviews. It was essential that the participant felt comfortable, secure and able to talk freely in the interview environment, otherwise the integrity and accuracy of data could have been compromised. Participants were invited to come to UEA where a private room could be arranged. Alternatively, if they preferred or it was more convenient for them, the interviews could be conducted at the participant's own office if suitable. Once participants had been recruited and arrangements had been made, the interviews took place at the participant's location of choice. All of the participants chose to be interviewed at their place of work. The pilot interviews were conducted between August and October 2010.

Participants gave fully informed consent prior to the interview. At the start of the interviews the participants were verbally briefed again about the study by the interviewer, given another copy of the participant information sheet (Appendix 3) to ensure that they understand the project. They were also reassured of confidentiality and asked if they had any questions. Then they were asked to sign two copies of the consent form (Appendix 5), one for the interviewer and the second for them to keep. Before the interview started, participants were asked to complete a participant demographic sheet (Appendix 6) in order to gather demographic data and information regarding their SpLD. A digital voice recorder was used to record the interviews as it allowed the interviewer to fully engage with the participant and the process of the interview, without the distraction of having to take notes. Participants were informed when the recorder was being switched on and off.

The interviews were intended to last approximately 45 minutes. Blaxter et al. (1996) argued that interviews lasting under 30 minutes would not produce anything of value, however to go much over an hour could be placing unreasonable demands upon the participant and result in a lower number of people being willing to participate. The interviews lasted on average 45 minutes, which was sufficient to gain the data required without demanding too much of the participants' time.

On completion of the interview, the participants were thanked for their participation, reassured once more about confidentiality. They were also told that if they would like a copy of the overall results for the study, to contact the interviewer with an email address to send the report to. This was a way of keeping the participant involved with the research and showing them that they were an important part of it and not just discarded once the interviews were completed and the researcher has the data that they wanted.

Data Analysis

Patton (1990, p139) states that 'The period after an interview or observation is critical to the rigor and validity of qualitative inquiry. This is the time for guaranteeing the quality of the data'. Thus as soon as possible after leaving the interview, the researcher needs to check that the recording is audible, make notes about the interview and the participant and reflect upon the interview. This was completed after each of the interviews with the GPs in order to capture this information as accurately as possible.

The data from the interviews was then transcribed by the interviewer into Microsoft Word and the participants were assigned an identification number to replace their names. The interview transcripts were checked for accuracy against the original recording and then transferred into QSR International's NVivo 9 qualitative data analysis software, where the transcripts were analysed using thematic analysis. This method of analysis was used to determine the existence of particular words, phrases or concepts within the interview transcripts, which were then grouped in to suitable themes. According to Alhojailan (2012) thematic analysis is an appropriate form of analysis when wanting to explore possible influences of factors on the current practices of an individual. This method uses an inductive approach whereby the themes are derived from the data transcripts. This type of analysis was considered the most appropriate for the interview data as, according to Boyatzis (1998), thematic analysis is a systematic way of handling information that it is often found to be valuable in the beginning stages of a research inquiry as pilot studies, as well as at later stages. The same lead researcher coded the data on two separate occasions in order to establish the consistency of the coding and reliability. The results from this analysis were used to inform questions on a questionnaire which was developed and then used in the later stage of this overall project (Study 1).

When reporting the results people's names have not been used at any time nor has any other potentially identifiable data, such as their work location. During the interview, confidentiality was ensured as no identifiable personal information was asked for.

Results

Overall 3 general practitioners agreed to be interviewed (see Table 5). Only one of the participants was formally diagnosed with dyslexia, however the other two participants both had children who had been diagnosed with dyslexia and described having many of the traits of SpLD themselves. These 2 participants were in an older age group where the likelihood of them being diagnosed with SpLD whilst they were younger would have been reduced, due to lower levels of awareness and acceptance of SpLD at that time.

	Gender	Age	Years Qualified	Disability	Diagnosed
Participant 1	Male	41-50	17	Dyslexia & Dyscalculia	Suspected
Participant 2	Female	36-40	10	Dyslexia	Yes
Participant 3	Female	51-55	25	Dyslexia	Suspected

Table 5: Participants for pilot interviews

Themes

Overall 9 themes were identified (see Table 6) and these will be described in more detail below.

	Theme Label		**Sub-theme label**
1	Weaknesses		
2	Strengths		
3	Coping strategies	a	Support in the workplace
		b	Support in medical school
4	Impacts of dyslexia		
5	Error		
6	Hiding weaknesses		
7	Disclosure	a	Awareness
		b	Attitudes and stigma
8	Career influences		
9	Levels of dyslexia		

Table 6: Table of themes from the pilot interviews

1. Weakness

One of the most common themes reported by all of the participants was connected to weaknesses and the difficulties that they experienced in the workplace as a result of having SpLD. The most frequently reported difficulty by all 3 participants was with spelling and the consequential effects that this had upon their work. As a result of this, tasks such as administration work, letters, prescriptions, patient notes and referrals were described as difficulties and tasks that took a long time to complete. Interestingly, the participants expressed often being able to spell medical terms and drug names, whilst experiencing difficulties with everyday words. Other spelling difficulties described included transposing letters in words and using the incorrect vowels. Participants described often having to look up the spellings of words and having to use spell-checkers and other aids as a way of helping to overcome these difficulties.

Another difficulty found with completing written work was with writing, both by hand and on the computer, and with structuring words and sentences. These difficulties again meant that these tasks took longer to complete and also increased the participants'

levels of anxiety over making errors in their work, which is a separate theme discussed later. Participants also explained that the lack of an available spell-checker in some computer programs they were required to use often exacerbated their written difficulties.

Although the main weaknesses highlighted by participants involved their written work, other weaknesses that they commented on related to memory difficulties and their learning styles, especially when compared to their peers. Two described difficulties with learning new information and also in retaining information in relation to their short term memory. One participant explained that remembering the range of things, such as blood count was particular difficult for them, along with very specific facts. All of the participants expressed a difficulty in relation to reading, such as reading from the computer, reading blocks of text and indexes. Proof reading and picking up on their own mistakes in their written work and often reading what they think is written as opposed to what has actually been written were also common weaknesses. Other weakness involved having the concentration and focus to be able to read information and the additional time that it took to process and comprehend what they have read. Two of the participants also reported learning to read later than their peers when they were younger.

Other problems involved more general tasks including experiencing difficulties with multiple choice exams, completing forms and following grids and tables. Other weaknesses included distinguishing between left and right, time management, driving directions even after multiple visits to the same place, map reading when out on visits, and generally having a low attention span. All the participants remarked that their work took them longer than their colleagues, often due to the additional time required to overcome a particular difficulty that they were having with spellings for example, or just because it generally took them longer to process the information that they were dealing with.

2. Strengths

Interestingly all the participants described communication and patient contact as areas in which they felt their particular strengths lay. They described often trying to ensure that their patients understood what they were saying and they felt they may be more

aware of people's needs than their colleagues. However, participants also seemed to try and account for this by explaining that it could be just a particular personality trait or just as a result of practice over their professional years as opposed to being related to them having SpLD.

Participants were aware that they did things differently to their colleagues and that they have separate strengths when compared to them, such as being more visual in their thinking. One participant talked about the differences in problem solving styles when compared to those without SpLD and how they thought those with SpLD were perhaps more intuitive when it came to these types of tasks. Overall though, communication and empathy were described as the two main strengths that the participants felt they had and that they thought a doctor would have as a result of having SpLD.

3. Coping strategies

All three participants described using various sorts of coping strategies to help them overcome any SpLD type difficulties in their work. Strategies varied from spell-checkers, voice activated software and other medical based computer systems, to small informal strategies such as colour coding indexes and completing work out of hours. All the participants described themselves as being particularly tenacious when it came to handling and tackling some of issues that they found difficult and seemed to believe that most weaknesses could be overcome by employing a coping strategy of some sort.

Participants described their visual skills as being a strength and so they often used this strength to develop coping strategies when studying or when dealing with new information. It appeared that the participants were very aware of their skill sets and were able to use these to their advantages.

3a. Support in the workplace

None of the participants had any formal support in place or had sought any formal support for their work. One participant spoke about how they work in a generally supportive environment anyway and believed that if they did need any support it would be there for them. The participants felt that if they or another doctor with SpLD required support in the workplace, then this would be reasonable and should not be seen as

advantaging them over others. However, there did appear to be some uncertainty about what support could actually be put in place in the clinical setting. The participants believed that if a doctor knew his or her limitations then they would be able to find a successful way to manage their difficulties. Despite none of the participants having any official support they all commented on the benefits of having the use of computers and relied on functions such as spell-check.

3b. Support at medical School

None of the participants had had any support during their medical degree and only one of the participants had received any support during their 'A' levels, where they were given additional time for their exams. This participant expressed that this additional time was needed and helped to relieve the pressure and stress during the exam period. The same participant explained that although they did not receive any support during medical school, they felt that it would have been beneficial to have had additional time for their exams and that it would have made a significant improvement to their final exams experience. Another participant commented that when they were in school and training to be a GP, support for students with SpLD just did not exist and that it has only become an option for those who have been through more recent training.

4. Impacts of dyslexia

One participant reported that although they felt that having dyslexia had not had a particularly strong affect on their work, they could understand how it easily could for somebody else. Another participant commented that from talking during the interview that they were becoming aware of the ways in which being dyslexic had affected them. One participant explained that they were reluctant to acknowledge the impact of their dyslexia as that would be admitting to weaknesses. This is also covered in the theme 'hiding weaknesses' below.

The participants seemed to have accepted any potential differences or affects of SpLD on them and take it as part of who they are, and then develop coping strategies as and when required. For all three of the participants this was one of the first opportunities that they had had to discuss their SpLD and its potential influences. They noted that they had not really considered it before the interview and therefore slowly through the course of the interviews, the participants began to reflect and think more about the effect on them and their working lives. One participant highlighted the point that the

level of the effect SpLD would have on a doctor would depend upon the severity of the SpLD and that those who have been successful in finding appropriate coping strategies to deal with any effect might be unaware that they even have SpLD.

5. Error

Two participants stated that they thought they were more likely to make an error due to the fact that they had SpLD. One participant explained that it was when writing prescriptions that they felt they were most likely to make a mistake, but computer systems used today significantly reduce that rate and they also checked their work numerous time to prevent errors happening.

When the participants were talking about the coping strategies that they use in the workplace, they also seemed to imply that they had developed them because they were aware that their weaknesses could result in them making an error in their work. They described checking procedures and being thorough in their work in order to help prevent the occurrence of errors.

6. Hiding weaknesses

All of the participants described not wanting to be seen as weak due to having difficulties and not wanting to use being dyslexic as an excuse not to do things. One participant went on to explain that doctors often hide common illnesses or conditions in a competitive environment as showing a potential weakness is not good. This participant continued on to explain how they hide some of their difficulties, for example disguising poor spellings with bad handwriting. Hiding weakness appeared to be a coping strategy employed by two of the participants to avoid embarrassment or suspected judgement from others.

7. Disclosure

When talking about whether they would disclose that they had SpLD to people, the participants appeared to be fairly relaxed and said that they 'weren't bothered' about their colleagues knowing; however none of the participants had actually disclosed their dyslexia. One participant explained that they would not mind their colleagues knowing

as they were now past the competitive stage in their career, perhaps implying that previously they viewed it as having the potential to negatively affect their career.

When the topic moved on towards how they felt about patients knowing that they had SpLD there was a mixed response. One participant was not particularly concerned about whether their patients knew or not and felt that their abilities as a doctor were judged on other factors such as communication skills and patient rapport. Whereas another participant felt that this was personal information that should not be shared with patients. The final participant explained that if it was appropriate in a given situation then perhaps it would be reasonable to disclose the fact that they had SpLD to a patient.

7a. Awareness

Awareness was a subtheme identified in relation to both others being aware of SpLD and the participants having a sense self awareness. When discussing SpLD in relation to others' opinions and awareness of it, the participants believed that very little was known about SpLD and that knowledge of SpLD by the general population was generally low. One participant told a story where one of their neighbours had referred to dyslexia as 'the D-word' which is a reference of how people sometimes refer to cancer as 'the C-word'. The participant explained how they were shocked at this referral and that they could not believe that something that was so normal to them could be viewed by someone to equal the severity of cancer.

Overall the participants actually seemed to be quite uninformed about SpLD in terms of their own general knowledge about SpLD, but instead used personal experience on which to base their knowledge.

7b. Attitudes and Stigma

The participants appeared to have positive attitudes when it came to their SpLD. The participants described working hard to overcome their difficulties and developing compensatory coping strategies where necessary. One participant explained that they thought themselves to be 'thick' or 'stupid' as they experienced difficulties when studying that their peers did not, and also described experiencing feelings of doubt about having SpLD even after they were diagnosed with it. They felt it was an excuse for being, what they considered, weaker.

Participants also spoke about how when they were in school, teachers were unaware about SpLD and that most people were thought of as just being 'thick' and placed in remedial classes, and that even if someone was diagnosed with SpLD it was considered an excuse or label for being unintelligent. Another participant expressed how, because they did not feel that it was an issue or considered themselves to be any different to anyone else, they could not comprehend that anyone would attach a stigma to SpLD.

8. Levels of dyslexia

There was a general feeling that those with more severe levels of dyslexia would not have made it through the 'traditional' teaching methods of medical school. It appeared that the participants believed that the higher a person's level of intelligence, the more capable they would be of developing strategies to help them overcome any difficulties encountered. One participant went on to explain that older doctors could be unaware that they have SpLD as they would had to have the ability to find successful ways to develop compensatory coping strategies for any difficulties or weaknesses that they were experiencing.

9. Career influences

When deciding upon a specialty the participants seemed to have considered one that was either best suited their strengths (e.g. those with higher levels of patient contact) or were inspired by those already working in their specialty. Participants also said that they felt having dyslexia would not have stopped them from choosing any specialty, although they did think that specialties such a Public Health might be more problematic due to it involving larger amounts of paper work. The participants also explained that they felt coping strategies could always be developed to help overcome any difficulties experienced in any particular specialty. In relation to choosing their specialty, the participants described how they felt that they could have chosen any specialty that they preferred and that as long as they were prepared to do the necessary work required for that specialty, then they would have found a way to succeed.

The outcome

Three interviews with General Practitioners in the Norfolk region were conducted with the aim of providing a basis on which to create a questionnaire for the next stage of this project. Results indicated a number of different themes and points of interest (Figure 2) which, in addition to the existing research literature, helped to form the basis of a questionnaire (discussed below) and provided the foundation for the next stages of the project.

Conducting the pilot study also enabled the lead researcher to practice interview skills, test out equipment, practice interview procedures and work on skills such as building rapport with participants and dealing with potentially sensitive subjects. The lead researcher's previous job as a disability workplace assessor had already provided some experience of interviewing people; however the purpose of these interviews was quite different. The interviews that were conducted in the larger later stage of this project were completed over the telephone and so by completing these first pilot interviews as face-to-face interviews it was a good introduction to qualitative research interviewing.

Participants reported negative stigmas and general lack of awareness about SpLDs from others	None of the participants had any formal support in place or had ever sought any kind of support when employed or a medical student	Participants discussed using various coping strategies which were mostly limited to informal self instructed strategies
Participants described using some of these strengths to develop successful coping strategies	Participants did feel that they were more likely to make a mistake than their peers	Participants described ways of hiding their difficulties from their colleagues and patients.
Participants did not seem concerned about disclosing their SpLD although none of them had actually disclosed to their workplace	Participants did not want to use dyslexia as an excuse for not performing their job as well as they should or for getting out of doing something	Participants described some difficulties with everyday tasks as well as clinically based tasks.

Figure 2: Key points taken from pilot interviews and incorporated into the electronic questionnaire discussed in the next chapter.

<u>PILOT B</u>

Developing the questionnaire for Study 1

The next section of this chapter outlines how the electronic questionnaire (for Study 1) was developed and subsequently piloted (Pilot B). The aim of the piloting the questionnaire was to gather information about what the electronic questionnaire would be like for participants to complete, to ensure that it was suitable for the participants and that the questions were appropriate and clear. It was important to identify areas of the questionnaire that pilot participants thought needed improving in terms of layout, question style, question wording so that these could be improved before commencement of Study 1. This was a key reason for discussing questions with other PhD students when creating the questions and for piloting the questionnaire.

Materials - Developing the questionnaire

The instrument development model (Schifferdecker and Reed, 2009) was being used, whereby qualitative data was gathered through pilot interviews with a small number of doctors with SpLD in order to develop a quantitative measure (the questionnaire). As such, the quantitative measure was based upon experiences, views and language of participants, as opposed to being based exclusively on the standpoint of the researcher. Previous research regarding healthcare professionals with SpLD was also taken in to consideration when designing the questionnaire.

There were many factors to consider when developing this questionnaire in the hope that it would result in valid and accurate data that answered the research aims. Foddy and Foddy (1994) stated that when designing a questionnaire it is crucial that the researcher is precise and unambiguous about the data wanted and ensures that the questions asked in the questionnaire will result in these data. It is also important that the questions are interpreted by the participants in the way the researcher meant and their response in return is interpreted by the researcher the way the participant had intended.

Question types

When developing the questions and the response options, particular attention was paid to the wording of the questions, as it was important to avoid any bias, offensive or leading questions. It was also important that the wording was simple, concise and did not contain any jargon or abbreviations (Drennan, 2003). Additionally, it was important that only relevant questions were asked in the questionnaire and that each question had its own value (Gray, 2009). This questionnaire contained various types of questions:

- Classification questions – These questions are used to give the foundation for analysing the association between the different types of variables. So for this questionnaire it was the questions regarding the participants' SpLD diagnosis.

- Closed questions – These are where the question has a set number of responses available for the participant to select, for example, 'yes', 'no' and 'sometimes'. These questions do not give the detail of open questions but are easier to analyse. These were used throughout the questionnaire.

- Open questions – These types of questions do not have a defined response; they enable the participant to have more freedom in their answers and they provide richer information. Open questions have been used in this questionnaire mostly to enable participant to expand on their answer from a closed question.

- Filter Questions – When creating an electronic questionnaire filter questions can be created that will alter the next question that participants are asked depending on their answer to a particular question. This type of question has been used to alter the questions given to those who say they have SpLD and those who say they do not.

- Compulsory questions – Using an online tool such as SurveyMonkey allows questions to be created that participants must answer before they can move on to the next question. This can be useful if there is a crucial piece of information

that is required. If the participant did not wish to respond to the question then they cannot complete the questionnaire and it will end.

- Scale questions – The majority of the questions in the questionnaire are scaled questions. These are a type of closed question for questions that require more than a straightforward response; the participant will be asked to select the most appropriate response using a 5 point Likert scale.

A 5 point scale has been chosen for a number of reasons. Many researchers have tried to determine the optimum number of points to use in rating scale, with most current practices for Likert type scales and attitude measures normally containing 5 or 7 response points (Bearden et al., 1993). It would seem that the best number of scale points depends upon their purpose. Preston and Colman (2000) commented that under a time restricted or pressurized environment using a lower number of points may stop the participants from becoming unmotivated when completing the questions. Scales with 5, 7 and 10 points were seen as easier to use by participants, where as those with a smaller number of points where seen as quicker to use but very limited in expression. Preston and Colmon (2000) concluded that participants perceive 5 points scales as easier to complete and less time consuming than longer scales. This could be a key point for the questionnaire as doctors are extremely busy people and if they perceive the questionnaire to be vast, with many possible answers, then they may opt out of completing it due to time constraints. Also being faced a large number of possible outcomes could be particularly intimidating for someone with SpLD. Using 5 points will still give a good range of options and should still hold a high level of face validity, which is the degree to which a 'measuring instrument appears to be measuring what it claims to measure' (Gray, 2009, p.576).

Questionnaire sections

There were two versions of the questionnaire, one for those with a diagnosed or suspected SpLD and one for those without SpLD. The topics covered in the questionnaire were based upon important themes (see Figure 3) and findings from the pilot interviews with GPs (such as stigmas, awareness, hiding errors, difficulties with more everyday and clinical tasks and making errors) and the research outlined in the literature review (Chapter 2). There were 13 different sections of the questionnaire. The

first 8 sections of the questionnaire were the same for all participants, so that comparisons could be made between groups. Those participants that responded 'yes' to either being diagnosed or suspected that they had SpLD in the disability information section 9, as this was the criteria used when dividing the participants into groups, continued on to sections 10, 11 and 12 of the questionnaire. One of the advantages of using an online questionnaire with question filtering is that all the participants have to do is answer the questions accordingly, the software will automatically determine the next set of questions the participant will see, and so there is no need to have to write instructions on how to complete it.

The different sections to the questionnaire are shown in Table 7. The order of the sections and the questions within them was based on De Vaus (2002) in that those questions which are easily answered should come first, then as participants become more comfortable the questions can become more complex and detailed.

No.	Page Name	Details	Related to Interview theme	Question Types
1	Information for participants	This was the first page that participants saw and it gave a general introduction to the study, the researcher's contact details and thanked the participants in advance for their time. A link to an electronic version of the 'participant information sheet' was available if participants wished to read it again (it was also provided with the recruitment email). At the bottom of this page information for any participants interested in taking part in a telephone interview (Study 2) was provided. Such participants could either select the 'contact details' link on this page or leave their details at the end of the questionnaire.	N/A	N/A

2	Personal information	This was the first page of questions for the participants and asked about their age, gender, medical school attended, year graduated, style of medical course, current position, and length of time in position.	N/A	• Closed questions • Open questions
3	Coping in the workplace	This section asked participants to rate on a 5 point Likert scale the extent to which they agreed from 'strongly disagree' to 'strongly agree' with a set of statements about stress in the workplace and how they felt that they were coping with their work.	(4) Impacts of dyslexia (5) Error	• Scale questions
4	General Skills	In order to establish what participants felt their strengths and weaknesses were regarding more everyday tasks, they were asked to rate themselves on a 5 point scale from 'very poor' to 'very good' on a set of 14 general skills.	(1) Weaknesses (2) Strengths	• Scale questions
5	Work related Skills	To establish what participants felt their strengths and weaknesses were in medical practice and the workplace they were asked to rate themselves on a 5 point scale from 'very poor' to 'very good' on a set of 26 clinical based tasks.	(1)Weaknesses (2) Strengths	• Scale questions
6	Perceptions of SpLD	This section asked how participants felt others would react to having doctors with SpLD and asked them to rate their opinions on a 5 point scale from 'strongly disagree' to 'strongly agree', on 10 statements.	(7a) Awareness (7b) Stigma	• Scale questions • Closed questions

7	Support	This page asks about what, if any, kinds of support do doctors use in the workplace and how effective are they. It asked about participant's use of assistive computer software and also if they used any informal coping strategies in their work. Participants were asked to elaborate where possible on their responses in this section. It also asked if any issues had ever been raised due to their work and how well they thought they were coping in their job.	(3) Coping Strategies (3a) Support at work	• Closed questions • Open questions
8	Career	To establish if having SpLD has affected career decisions participants were asked to score 8 potential career influences on a 5 point scale of importance from 'very important negatively' to 'very important positively'. There were also open ended questions about their current specialty and career.	(8) Career	• Closed questions • Open questions • Scale questions
9	Disability information	This page was where participants were asked about whether they had been diagnosed with SpLD or not.	N/A	• Filter question
Those who responded 'no' to having or suspecting that they have SpLD at section 9, were taken through to a final 'Thank you page' that thanked them for completing the study and gave the researcher's contact details in case they had any further questions. The questionnaire was complete.				
Those who responded 'yes' to having or suspecting that they have SpLD at section 9, continued on to a further 3 sections.				
11	Overall effects of	This section contained more questions	(4) Impacts of	• Open questions

	SpLD	regarding the impact of SpLD on participant's lives in general and work as a doctor. It also asked about how they felt about having SpLD and if they ever tried to avoid areas of their work because of having SpLD.	dyslexia (5) Error (6) Hiding weakness es (9) Level of SpLD	• Scale questions
12	Disclosure	This page asked about whom participants disclosed their SpLD to and if they had disclosed when applying for their current position.	(7) Disclosur e	• Scale questions • Closed questions
13	Thank you	A final 'thank you page' thanked them for their participation in this study and asked them if they would be interested in taking part in a telephone interview to explore the possible effects of SpLD on doctors further, asking them to contact the researcher for more information. The details of The British Dyslexia Association and Dyslexia Action were also given for if participants wanted to seek more information about SpLD.	N/A	N/A

Table 7: Sections of the questionnaire design for Study 2

Layout

The overall layout of the questionnaire is very important as it has been associated with completion rates (Gray, 2009). SurveyMonkey already provides a layout template but it does allow one to have more flexibility with the layout of the questions. Clear navigation buttons were provided at the bottom of the page labelled 'next' and 'previous' for moving forward and backwards a page respectively. There was also an 'exit this survey' button on every page in the top right hand corner, in case at any point the

participants wanted to stop completing the questionnaire.Aas some of the potential participants would have SpLD it was important that the layout was simple, using a clear font and the questions were clearly lined up with the possible responses.

Validity

As part of developing this draft questionnaire before it went out for external piloting, the lead researcher asked two fellow PhD students to complete an informal version of cognitive interview about the questionnaire. This was where the researcher asked colleagues to go through the questionnaire and verbalise how they would answer the questions and how they interpreted each question. This helps the researcher to try and understand the questionnaire from the respondent's perspective and then enables them to see where any potential misinterpretation or confusion could occur (Drennan, 2003). This also helps with establishing validity by making sure that the participants interpret the questions in the way that they are meant to be interpreted, therefore providing responses that will answer the research aims. Cognitive interviewing has been found to be extremely successful in developing questionnaires and it can be particular useful when dealing with sensitive or complex issues (Drennan, 2003). This provided the opportunity to go through and correct any errors before sending the questionnaire out for the large-scaled pilot test.

Although only completed on an informal level, going through this process with colleagues was very helpful. The PhD students voiced their thoughts clearly, giving their overall opinion on the questionnaire when they had completed it, highlighting a couple of areas that needed to be reworded slightly for clarity and commenting on a few questions they felt were unnecessary. All of the responses were positive, with only a couple of constructive criticisms which were addressed before further piloting.

Piloting the questionnaire

The questionnaire was developed in Microsoft Word, as this was easier for editing and amendments while the questionnaire was still underdevelopment, then it was recreated in SurveyMonkey (www.surveymonkey.com). SurveyMonkey was the online survey programme selected to create the questionnaires for this study as it is simple to use and it is possible to create a variety of different types and styles of questions in the

questionnaire. SurveyMonkey is compatible with assistive software such as screen readers and voice activated software which some of the potential participants maybe using. It is also simple to export data into Microsoft Excel or SPSS ready for analysis.

Sample - Recruiting pilot participants

Using both purposive and convenience non probability sampling methods, an invitation email containing details of the pilot (Appendix 7) was sent on 3rd June 2011 to all members of UEA's Norwich Medical School's Recognised Teachers database. This was considered to be a suitable pilot sample as it contained potential participants with both medical and research knowledge. As only feedback was required about the questionnaire it did not matter whether the pilot participants had SpLD or not or even if they were doctors or not so there were no restrictions imposed on who could reply; everyone in this database could respond if they wished to

A link to online questionnaire was included in the invitation email sent to pilot participants. All pilot participants were asked to review the questionnaire and give their feedback about the design; they were not asked to answer the questions. At the end of each page of the questionnaire additional textboxes had been added especially for the pilot study, so that pilot participants could directly enter their comments, thoughts, feedback into them. Although some of the pilot participants did choose to complete the questionnaire it was only the information written in these additional textboxes that was collected online and used in analysis. After the pilot these textboxes were removed to leave just the questionnaire questions. The questionnaire was available online for pilot participants to complete for 6 weeks. All of the filters were disabled so that all pilot participants could access all of the questions (including those questions only meant for participants with SpLD).

Responses

Overall 41 people responded to the pilot questionnaire. The information from the response textboxes was downloaded from the online survey software into Microsoft Excel where it was assessed for constructive criticisms or comments.

What first became apparent when initially examining the information provided by the pilot participants was that there were quite a few contradictions between the responses given. For some respondents questions were reasonable, understandable and unambiguous, whereas the same questions for other participants were unreasonable, confusing and ambiguous. It quickly became apparent that it would not be possible to satisfy all of the comments made as they were often contradicted by other participants' comments; therefore the most frequently reported comments were addressed, in the hope that this would then suit the majority of future participants.

Comments made also varied from the more obvious errors, such as spelling and grammatical mistakes, to suggested improvements on layout and wordings and also more detailed thoughts and opinions about the questions and even sometimes the research topic. Respondents made constructive comments on all pages of the questionnaire. One of the most frequent comments related to specific words used in questions. When asking some of the more sensitive questions it was often a case of trying to use words that carried the least negative connotations, while still trying to obtain the data required. Other pilot participants highlighted issues of ambiguity in the questions, which were easily rectified by either changing the wording to be clearer or adding in examples of what the question was referring to.

Occasionally participants seemed to perhaps 'over analyse' questions and appeared to read quite deeply into rather simple questions. Reasons for this could be due to the fact that they were asked to critique and give the opinions, so instead of taking it more at face value and simply examining the questions, they began to deeply analyse the whole content of the question and research aims. Others also made interesting suggestions about adding certain types of questions and looking at other areas, however they were not really relevant to the aims of this particular study so these changes were not made. The overall aims of the questionnaire for Study 1 were frequently consulted during review of the pilot participants' comments, as Rattrey and Jones (2007) argue that when revising a questionnaire it is important to refer back to the original aims of the research to ensure that any amendments made will still hopefully provide suitable data to answer these aims.

Another frequently suggested amendment was with the layout of the 'work related skills' page, which was felt to contain too many questions and pilot participants found it

overwhelming. This was easily rectified by separating it out over two pages with 13 skills on one page and another 13 on the following page. Other layout comments related to the spacing of particular question items, as some of the response boxes were too far away from the statements or question that they were connected with. These points were easily and quickly amended. Overall, the changes made to the questionnaire were mostly minor amendments and adjustments.

Finalising the questionnaire

After piloting the questionnaire's structural content did not change. The sections remained the same (as outlined in Table 3) and no additional questions were added nor were any questions removed. The wordings of some questions or their responses were adjusted to suit the majority of pilot participants' suggestions and the layout for some questions was amended. A final version of the questionnaire can be seen in Appendix 8.

By going through this piloting process the questionnaire was developed and refined so that hopefully it appealed to the majority of participants, thus helping to ensure the maximum possible completion rate. Piloting also aided in creating a valid and detailed questionnaire that will obtain the important data required to answer the research aims. Piloting the questionnaire was a key step in developing the Study 1 questionnaire and ensuring that it is was suitable as possible for the next stage of the project. The next chapter progresses on to Study 1 and explains how this questionnaire was used and the results obtained.

CHAPTER 6
STUDY 1 - QUESTIONNAIRE

This chapter details the first study completed for this project whereby, in order to gain a wider perspective on how medical doctors throughout the UK are coping in the workplace, a national online questionnaire has been conducted (Study 1). The development of the questionnaire designed for this study was discussed in the previous chapter.

Research Aim

The overall aim of Study 1 was to see to see if there was a difference between the perceptions of doctors with and without SpLD regarding how they function in a clinical setting.

A questionnaire was designed and used to gain information from doctors throughout the UK to meet the following aims:

1. To identify what difficulties doctor with SpLD may perceive they have in the workplace.
2. To identify what strengths doctors with SpLD may perceive they have in the workplace.
3. To ascertain what coping strategies and support doctors with SpLD have in the workplace and how successful it is.
4. To explore perceptions of doctors with SpLD held by both doctors with SpLD and without SpLD.
5. To identify reasons for and against the disclosure of SpLD by doctors to both patients and colleagues/peers.
6. To establish if having SpLD has an effect doctors' career choices.

Hypothesis

The research hypothesis for Study 1 was as follows:

'Having a specific learning difficulty will not have an impact on views of doctors regarding functioning as a medical doctor in a clinical setting'

Method

The questionnaire

In order to meet the stated research aims, an online questionnaire was designed and data were collected from doctors both with and without SpLD. As described in Chapter 4, the rationale for choosing an electronic questionnaire for this study was to enable doctors all over the UK to take part if they wish and to participate at a convenient time for them. The questionnaire was based on the findings of pilot interviews with 3 GPs and the existing research literature. It included open ended and closed questions which aimed to gather information on the following topics: personal information, coping in the workplace, general work tasks and clinical tasks, perceptions of SpLD, career, support and effects of SpLD; as detailed in Chapter 5. Details of the design and piloting were described in full in Chapter 5.

Recruitment

In order to contact doctors throughout the UK about potentially participating in this study, the original recruitment strategy involved contacting the medical Royal Colleges to ask them to assist with recruiting qualified medical doctors (Appendix 9). The Royal Colleges are responsible for different medical specialties in the UK and provide support to their members and supervise training of doctors within a specific medical specialty. Those Royal Colleges who agreed to assist with the research were asked to send an invitation email on to their members who are qualified medical doctors. This email contained information regarding the study (Appendix 10), a Participant Information Sheet (Appendix 11), the contact details of the lead researcher and a link to the online questionnaire for them to complete if they wish. It was hoped that the Royal Colleges would forward a reminder email 4 weeks after the initial invitation email (Appendix 12). Recruitment for the Study 2 telephone interviews (further details are provided in Chapter 7) took place alongside recruitment for the Study 1 online questionnaire.

Potential interview participants were asked to contact the researcher to discuss the interviews and to arrange a mutually convenient time for an interview if they were interested in participating.

However, out of the 16 Royal Colleges sent an email asking them to help with recruitment, only 3 Colleges responded positively. Although they were unable to send out emails to their members, The Royal College of Surgeons of Edinburgh (UK) and the Faculty of Pharmaceutical Medicine (UK) advertised the study on their website and The Royal College of Surgeons of England (UK) placed an advert in their newsletters about the study, all detailing contact information and a link to the questionnaire.

Due to low participation rate there was a recruitment drive in the local Norfolk region to recruit doctors for Studies 1 and 2. For this, posters (Appendix 13) were placed in staff areas of local medical institutions advertising the studies. In total 13 regional hospitals were contacted to ask for permission to advertise the study and 6 of these hospitals agreed to put up posters and/or advertise the study to help with recruiting participants.

An ethical amendment was also completed to widen recruitment to recruit via the newly implemented clinician subset of the Recognised Teachers mailing list from the Norwich Medical School at the University of East Anglia. This database section contains details of clinically qualified staff who are involved in teaching undergraduate medical students but who are not employed by the university. Ethical approval for the amendment was obtained and the same recruitment emails as outlined above were sent out inviting those on this database who were a medical doctor to complete the questionnaire.

In order to ensure that as many potential participants as possible were reached, emails asking for help with recruitment were also sent to a number of medical-based organisations in the UK: The Academy of Medical Educators (AoME), Doctor's Net, the British Medical Association (BMA) and The Association for the Study of Medical Education (ASME). As a result, the Academy of Medical Educators posted a piece about the study in their members' newsletter with a link on the open part of their website and Doctor's Net also agreed to post an outline of the study on the Doctors.net.uk forum with a link to the questionnaire. The BMA sent the recruitment email around some of the internal BMA mailing lists and ASME circulated the recruitment email to its members. An advert for the study with a link to the

questionnaire was also posted on the Severn Deanery School of Primary Care's website. The recruitment sources can be seen in Figure 3.
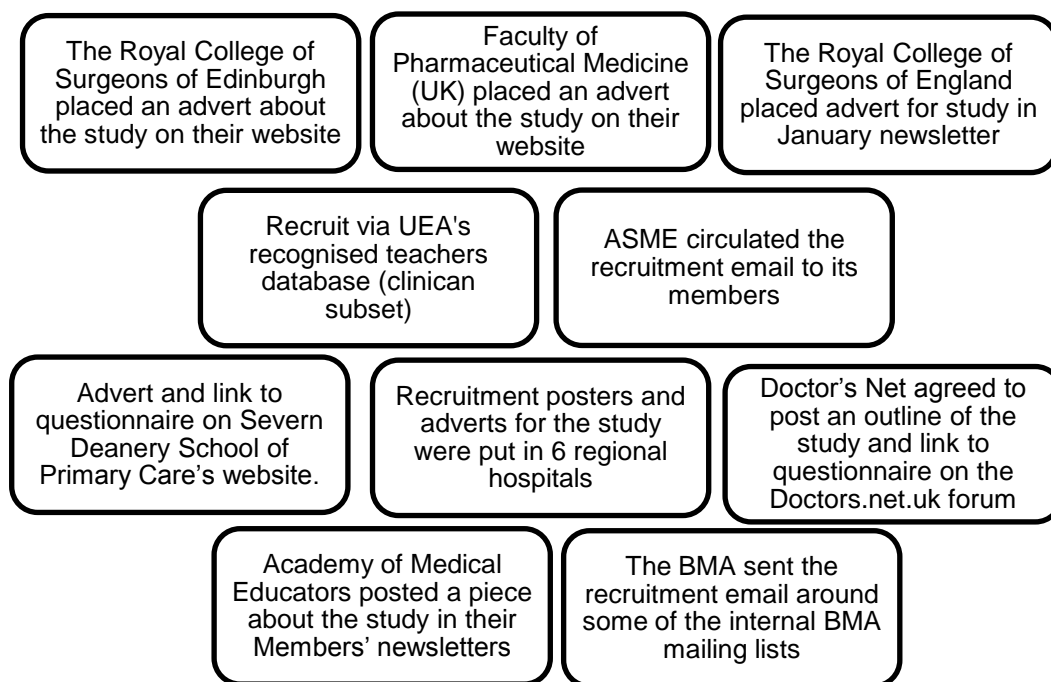
Figure 3: Sources used to recruit for Study 1 and Study 2.

Participants

Inclusion criteria: The inclusion criteria for the participants was anyone registered to practice as a doctor with the General Medical Council (GMC), irrelevant of gender, age and ethnic background, and who has been employed as such for a period of 6 months or more in order to ensure that the person has adequate experience of working independently in a medical setting to base their answers on.

Exclusion criteria: Any doctor who is not registered to practice as a medical doctor with the GMC, or who has not been employed for at least 6 months since qualifying.

Using previous similar UK based studies, an approximate estimate of 70-120 participants was set for the overall questionnaire (Morris and Turnbull, 2007;

Sanderson-Mann et al., 2012) including participants with both SpLD and without, in order to enable statistical comparisons.

Ethical consent

Ethical approval was sought from the University of East Anglia's (UEA) research ethics committee. As such, an application for ethical approval and associated paperwork was prepared for the Faculty of Health (as it was called at the time) Research Ethics Committee for both Study 1 and for the follow up telephone interviews (Study 2, which will be reported in Chapter 7).

The Research Ethics Committee required some initial amendments with the research proposal. For example, they asked for adjustments to be made to the Participant Information sheet so that it contained details about how long the questionnaire would take to complete and so that Participant Information sheet could be printed out for participants to keep a copy for their records. All of the amendments suggested were simple to rectify and once they were completed full consent for the research to proceed was given on 6th December 2011 (Appendix 14).

Procedure

The Royal Colleges were contacted in December 2011 and asked to send out recruitment emails, where initially participants were asked to complete the questionnaire within a 7 week period and 1 reminder was sent out during that time.

As a result of this, The Royal College of Surgeons of Edinburgh and the Faculty of Pharmaceutical Medicine (UK) placed an advert about the study on their website in December 2011 and The Royal College of Surgeons of England advertised the study in their January 2012 newsletter. Local hospitals advertised the study in January 2012 and the clinician subset of the Recognised Teachers database at UEA were also contacted in January 2012. Doctors.net.co.uk. ASME, BMA and AoME were contacted in, and sent out recruitment information, in February 2012.

Overall data collection for Study 1 was started on 13th December 2011 and then was extended to finish on 30th March 2012 (i.e. when the survey closed).

Potential participants were provided with a link to the questionnaire via recruitment emails, newsletters and web pages, as outlined in the Recruitment section. This took participants through to a 'Welcome Page', detailing the study. A further link was also provided to a copy of the participant information sheet, should the participants wish to read it again. The participants could then complete the questionnaire at their leisure and once completed, selecting the 'submit' button saved their answers electronically.

Confidentiality

For the questionnaire data, participants were not required to provide their name and each submission was given a unique code number; so there was no way to identify the participant. As a result, there was no access to the potential participants' email addresses or any other personal information.

Those who answered "yes" to having SpLD were asked at the end of the questionnaire if they would also like to take part in a telephone interview (Study 2). If they were interested there was a link to a separate survey website where they were asked for their name and a contact email address. The contact details of the lead researcher were also provided so that interested participants could get in contact themselves directly if they wished. The participant's name and email address were only asked for so that the lead researcher could contact them about possibly participating in Study 2 (the telephone interviews). Participants only provided this personal data if they were interested in participating and the survey used for participants to enter their details for participation in Study 2 was not linked to the previous questionnaire and, as such, participants' details could not be linked back to their responses for Study 1.

All of the information obtained during this study was handled in accordance with the Data Protection Act of 1998. Data obtained from all the studies was kept on a password-protected computer and was only seen by the lead researcher and members of the supervisory team for analysis. At the end of the research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of.

Data analysis

When the data collection period ended, the data were downloaded from the SurveyMonkey website and inputted into SPSS version 19 to conduct analysis on the data and gain a range of descriptive data and inferential statistics.

Using the data gathered from the questionnaire, general descriptive statistics (e.g. percentages and means) were calculated separately for each of the two groups: (1) those diagnosed with/have a suspected SpLD and (2) those without SpLD, for each of the closed questions. Potential differences were explored between groups regarding: the perceived ability to complete general tasks and work related tasks, differences in perceptions of SpLD, differences in how well participants believe they perform their job and future career aspirations. Comparative analysis was conducted to compare the different results between the two groups using a 5% significance level. The data were not normally distributed (Kolmogorov-Smirnov test $p < 0.005$) so the requirements for use of parametric tests were not met. Additionally, because the data from Likert scales are considered ordinal data, the appropriate inferential statistics were calculated using non-parametric Mann-Whitney U and Chi-square analysis tests (Field, 2000; Dancey & Reidy, 2004; Jamieson, 2004). Mann-Whitney determines whether there is a statistically significant difference between the mean ranked score for each group (Dancey and Reidy, 2004).

Although this test uses the median, the mean scores have been used as a measure of central tendency when reporting the data in the results tables. This is because the mean gives an indication of what a typical score by a participant would be and is calculated from the actual participants' scores not from ranks, as the median is calculated (Dancey & Reidy, 2004). Although a weakness of using the mean as reported by Dancey & Reidy (2004) is that it can be sensitive to extreme scores or outliers, because Likert scales were used the range of scores is only from 1 and 5, and so the chance of scores being affected by an extreme score or outlier is unlikely. Standard deviations have also been reported in the results tables to accompany the means. For the open-ended questions, the data provided was reviewed and coded into themes and any commonalities between the responses that had been given were identified.

Results

General description of the sample

There were a total of 145 responses to the questionnaire. When exploring the raw data 16 participants were removed as they failed to complete 70% of the questionnaire. Thus, there were a total of 129 participants (46 were male and 83 female) whose responses were used in the overall analysis. Out of these 129 total participants, 40 (11 males and 29 females) reported being diagnosed with or suspecting they have SpLD (see Table 8). Most of the participants who had a diagnosis of dyslexia had been diagnosed whilst attending university (32.5%, n=13) and only 17.5% (n=7) had been diagnosed while at school and 12.5% (n=5) while at work. The remaining 37.5% (n=15) of participants suspected that they had SpLD.

Eighty one percent (total n=105, non-SpLD n=77, SpLD n=28) of the participants had completed a traditional medical degree course, with the rest being split between problem based learning (PBL) courses (total n=12, non-SpLD n=4, SpLD n=8) and other/not stated (Non-SpLD n=12). The majority of participants were over 41 years old, with 20% of participants being over 56 years (see Table 8).

Participants information	No. of participants	Percentage
Gender of all participants		
Female	83	64.34
Male	46	35.66
Total	129	100.00
Age Range of all Participants		
22-26	8	6.20
27-30	10	7.75
31-35	21	16.28
36-40	16	12.40
41-50	25	19.38
51-55	21	16.28
56+	26	20.16
No response given	2	1.55
Total	129	100.00
Participants' SpLD related information		
Diagnosed SpLD	21	16.00
Suspected SpLD	19	15.00
No SpLD	89	69.00
Total	129	100.00
Gender of Participants included in the 'with SpLD' group		
Females with SpLD	29	72.50
Males with SpLD	11	27.50
Total	40	100
Gender of Participants included in the 'non SpLD' group		
Female	54	60.67
Male	35	39.33
Total	89	100.00

Table 8: Number of participants' gender, SpLD and age related information

The average length of employment in their current job for the participants was 9.2 years (ranging between 6 months to 32 years). The majority of participants were employed at consultant level. The most popular specialty that the participants worked in was General Practice, followed by Paediatrics. See Table 9 for a breakdown of this information.

Current Level of Employment	No. Participants With SpLD	No. Participants Without SpLD
Consultants	13	40
General Practitioners	9	24
SpR2/1	5	7
F1/2	5	2
Other	8	16
Total	40	89
Specialty participant is currently working in		
General Practice	9	26
Pediatrics	3	7
Gastroenterology	2	0
Anesthesia	2	6
Geriatric medicine	2	3
Psychiatry	2	6
Public Health,	2	0
Occupational Medicine	1	1
Acute medicine	1	1
Emergency Medicine	1	6
Obstetrics & Gynaecology	1	1
Pharmaceutical Medicine	1	1
Radiology	1	1
Pharmaceutical Medicine	0	1
Internal medicine	0	1
Oncology	0	1
Surgery	0	4
Other	12	23

Table 9: Occupational details of participants

Participant responses to questionnaire

The first section of the questionnaire asked participants to indicate on a scale (1=Strongly disagree, 2=Inclined to disagree, 3=Neither, 4=Inclined to agree, 5=Strongly agree) how much they agreed with a set of statements relating to how they felt that they were coping in the workplace and how stressed they were (see Table10). When examining how stressed doctors felt they were, there was no significant difference found between how stressful doctors with and without SpLD thought their job to be, how they felt that they coped with stressful situations and how well they felt they did their job. Although both sets of participants did rate their role quite stressful, results also showed that they appear to agree that they cope with this stress well and believe themselves to be successful in doing so.

Coping in the workplace	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
My work can be stressful	4.43	0.64	4.55	0.54	0.310
I cope well in stressful situations at work	3.80	0.88	4.06	0.71	0.128
I use strategies to help me cope with stress in the workplace	4.18	0.71	3.87	0.83	0.035*
I do my job well	4.18	0.81	4.24	0.50	0.913
I am often concerned that I will make a mistake with my work	3.93	1.07	3.34	1.18	0.005*
I have been made to feel uncomfortable in my workplace due to difficulties at my work	3.48	1.47	2.49	1.22	0.000*

Table 10: Participants' rating of statement relating to coping in the workplace

Key: * significant at p<0.05   SD=Standard Deviation

1=Strongly disagree, 2=Inclined to disagree, 3=Neither, 4=Inclined to agree, 5=Strongly agree

Interestingly doctors with SpLD were significantly more likely to agree that they used strategies to help them cope with stress in their work and also reported being more

concerned that they would make a mistake in their work and that they had been made to feel uncomfortable in the workplace due to difficulties in their work than doctor's without SpLD.

General and work related skills

Participants were asked to rate their performance on 14 general everyday skills such as reading, writing and listening (General Skills), and 26 clinical related workplace skills (Work Related Skills) on a scale of 1-5 (very poor=1, poor=2, average=3, good=4, very good=5). In order to determine if there was internal consistency within each of these two sets (or scales) of the skill items (i.e. the items in the scale are all measuring the same thing), Cronbach's alpha was calculated. The 'General Skills' subscale consisted of 14 items (α= .845) and the 'Work Related Skills' subscale consisted of 26 items (α=.912). Both of these scales scored very highly and so confidence in their internal consistency can be assumed. Those with SpLD scored significantly differently than those without SpLD on 8 out of the 13 skills. For all of these 8 skills the participants with SpLD rated themselves more poorly than those participants without SpLD (see Table 11).

There were no differences in ratings of the two groups for the skills 'remembering information for long periods of time', 'typing on a computer', 'time management', 'processing visual information' or 'organising your workload'; but the latter was close to significant, with participants with SpLD rating themselves as more poorly than those without. The highest rated skill for those participants with SpLD was 'processing visual information', and their lowest rated skills were 'overall spelling ability', 'writing by hand' and 'writing legibility'. The highest rated skill for those without SpLD was 'reading comprehension', with 'writing legibility' being rated as their lowest level skill; however both of these were still significantly higher than the scores for the same skills given by those with SpLD.

General Skills	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Remembering information for short periods of time	3.28	1.15	4.15	0.75	0.000*
Remembering information for long periods of time	3.55	1.09	3.75	0.80	0.300
Organising your workload	3.53	1.11	3.92	0.86	0.059
Overall spelling ability	2.70	1.27	4.27	0.91	0.000*
Writing by hand	2.75	1.13	3.80	1.02	0.000*
Writing legibility	2.78	1.12	3.47	1.14	0.003*
Typing on a computer	3.30	1.20	3.72	0.87	0.079
Reading	3.18	1.28	4.44	0.67	0.000*
Reading comprehension	3.58	1.11	4.47	0.69	0.000*
Processing information that you have heard	3.53	1.15	4.08	0.82	0.013*
Processing visual information	4.00	0.88	4.26	0.70	0.148
Expressing your thoughts verbally	3.55	1.15	4.06	0.87	0.018*
Expressing your thoughts in writing	3.25	1.15	3.98	0.89	0.000*
Time management	3.30	1.11	3.69	1.00	0.092

Table 11: Participant rating scores for general skills

Key: * significant at p<0.05   SD=Standard Deviation

Statements scored on a 5 point scale where: 1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Very good

The participants were then asked to rate their performance, using the same 5 point scale used for general skills, for clinical related workplace skills (shown in Table 12). In contrast to the general skills (where there was a significant difference found between the 2 groups of doctors on nearly all of the variables) when it came to rating the 26 clinical related skills, there was only a significant difference found between the two participant groups for 2 of these skills.

Work related Skills	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Completing clinical examinations	3.80	1.09	3.89	0.98	0.721
Diagnostic skills during consultation	4.03	1.14	4.07	0.75	0.537
Prescribing medication	3.73	1.18	3.62	1.02	0.284
Record keeping	3.58	1.01	3.89	0.73	0.088
Practical clinical skills	3.70	1.31	3.83	0.92	0.937
Taking patient information	3.95	1.18	4.09	0.79	0.881
Team working & relationships with staff	4.05	1.09	4.36	0.61	0.229
Being aware of your limitations	4.18	0.71	4.11	0.59	0.440
Responding effectively to emergencies	3.88	0.79	3.84	0.93	0.752
Following safe procedures	3.95	1.15	3.83	0.80	0.122
Being responsible for your own learning	3.95	0.85	3.91	1.02	0.895
Discussing treatment options, including relative risks and benefits, with patients	3.88	1.16	4.20	0.92	0.093
Explaining medicines to patients	3.78	1.17	3.82	1.01	0.969
Completing drug calculations	3.30	1.38	3.28	1.15	0.651
Communicating with patient's family/carers	4.08	1.10	4.24	0.87	0.490
Communicating with patients	4.18	1.13	4.37	0.86	0.393
Communicating verbally with colleagues	4.00	0.78	4.08	0.97	0.300
Communicating in writing with colleagues	3.15	1.23	4.01	0.67	0.000*
Understanding medical ethical principles, including confidentiality	4.43	0.64	4.15	0.72	0.038*
Teaching colleagues/students	4.05	0.99	4.10	0.75	0.941
Ability to deal with own stress	3.48	0.93	3.60	0.77	0.584
Coping with responsibility	4.13	0.79	4.01	0.75	0.325
Coping with uncertainty	3.80	0.91	3.91	0.79	0.591
Working independently	4.23	0.70	4.14	0.80	0.571
Being empathetic	4.33	0.73	4.26	0.78	0.611
Supporting patients and colleagues	4.30	0.56	4.22	0.58	0.453

Table 12: Participant rating scores for work related skills

Key: * significant at p<0.05   SD=Standard Deviation
        Statements scored on a 5 point scale where: 1=Very Poor, 2=Poor, 3=Average,
        4=Good, 5=Very good

Those doctors with SpLD rated themselves significantly lower than those doctors without SpLD on 'communicating in writing with colleagues'. However, doctors with SpLD rated themselves significantly higher on 'understanding medical ethical principles, including confidentiality' when compared to those without SpLD. The latter was also the skill that doctors with SpLD rated themselves most highly on, followed by 'being empathetic' and 'supporting patients and colleagues'; although there were no significant differences found between the two groups for these two skills. For doctors without SpLD their highest rated skills were 'communicating with patients' and 'team working and relationships with staff', again there was no significant difference found between the results for the two groups for these two items.

An average score was then calculated for both sets of skills for both groups of doctors. The average score for everyday tasks for doctors with SpLD was 3.31 however this score rose significantly higher (Related Samples Wilcoxon Signed Rank test p=<0.001) to an average of 3.80 when rating clinical tasks. Whereas the average score given to these two groups of tasks remained relatively consistent for doctors without SpLD rating their general skills at an average of 4.00 and their clinical related skills at 3.99.

Perceptions

To establish doctor's opinions and perceptions about doctors with SpLD practicing medicine, all participants were asked to indicate their level of agreement, on a 5 point scale ranging from 'strongly disagree' to 'strongly agree', with a list of statements that covered possible views of doctors with SpLD (shown in Table 13). Participants were also asked to indicate if they knew and / or currently worked with a doctor with SpLD.

The first statement given to participants to rate was 'Overall having a disability would impact negatively upon working successfully as a doctor'. Interestingly doctors without SpLD agreed significantly more with this statement than those with SpLD. In contrast, those with SpLD agreed significantly higher than those without SpLD that doctors with SpLD would have more strengths in the workplace. Both groups agreed that someone with SpLD could make a successful doctor and that they would not have concerns about working with a doctor with SpLD. Both groups were inclined to disagree that patients would have any concerns about being treated by a doctor with SpLD and that other staff would treat such a doctor differently. In relation to whom should be told that

a practicing doctor has SpLD, on average all the doctors were incline to disagree that doctor with SpLD should tell their patients they have SpLD, but they were unsure when asked about whether a doctor with SpLD should tell their colleagues that they have SpLD, and tended to select the middle 'neither' option rather than agree or disagree.

Perceptions	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Overall having a disability would impact negatively upon working successfully as a doctor	2.65	1.21	3.19	0.92	0.012*
A doctor with SpLD would have more weaknesses in the workplace	2.93	1.29	3.30	0.93	0.111
A doctor with SpLD would have more strengths in the workplace	3.03	0.92	2.67	0.62	0.015*
A doctor with SpLD would be more prone to making errors	2.90	1.11	2.90	0.84	0.784
A person with SpLD could make a successful doctor	4.50	0.68	4.23	0.85	0.075
A doctor with SpLD should tell their patients that they have SpLD	1.98	1.10	2.16	0.81	0.124
A doctor with SpLD should tell their colleagues that they have SpLD	3.08	1.16	3.17	1.12	0.628
Patients would be concerned about being treated by a doctor with SpLD	2.45	1.30	2.64	1.04	0.278
Others members of staff would treat a doctor with SpLD differently	2.83	1.11	2.58	0.94	0.190
I would have concerns about working with a doctor who had SpLD	1.73	1.04	1.94	1.00	0.146

Table 13: Participants rating of statements concerning the perceptions of doctors having SpLD

Key: * significant at p<0.05   SD=Standard Deviation

Statements scored on a 5 point scale where: 1=Strongly disagree, 2=Inclined to disagree, 3=Neither, 4=Inclined to agree, 5=Strongly agree

When the participants were asked if they knew a doctor who had SpLD, 87.5% of the doctors with SpLD said they did know another doctor with SpLD; which was significantly higher than doctors without SpLD. Table 14 shows the exact percentages of doctors who currently work with a doctor with SpLD where it is interesting to note that whilst similar percentages of doctors in both groups had other doctors disclose their SpLD to them, more participants with SpLD suspected their colleagues of having SpLD than doctors without SpLD.

	SpLD		Non-SpLD		Sig. (X^2, Chi squared test)
	Number	Percentage	Number	Percentage	
I currently know doctors with SpLD					
Yes	35	87.50	54	60.67	0.002*
No	5	12.50	35	39.33	
I currently work with doctors with who have SpLD.					
Yes - they have disclosed to me	9	22.50	20	22.73	0.000*
Yes – I suspect I am	18	45.00	5	5.68	
No not that I'm aware of	13	32.50	63	71.59	

Table 14: Number of participants who know a doctor with SpLD

Key: * significant at p<0.05

Support

The participants were asked to indicate any assistive software that they use. A higher number of doctors with SpLD reported using assistive software (screen reading software, mind mapping software, voice activated software and spell-checks) to help them in the workplace, in comparison to those participants without SpLD. Spell checks had the highest number of participants use them in both groups of doctors, followed by mind mapping software for doctors with SpLD and voice activated software for doctors without SpLD (Table 15). One of the participants who did not have SpLD explained that they used voice activated software as their department was trying to introduce the use of this software across their team. Text to speech/screen readers had the lowest numbers of users in both groups.

In response to a follow on question about support used, one participants with SpLD explained how their work would be made significantly easier if there was a spell-check facility on their clinical records system and how the lack of a spell-checker means that they have to constantly be checking how to spell drug names and that they always try to avoid writing prescriptions by hand.

	SpLD		Non-SpLD	
	Number	**Percentage of total SpLD sample**	**Number**	**Percentage of total Non-SpLD sample**
Do you use any assistive software? (Number of 'Yes' responses stated below)				
Mind mapping	11	28	3	3.37
Spell Checks	30	75	41	46.07
Text to Speech/Screen readers	6	15	2	2.25
Voice activated	7	18	6	6.74
No (Do not use any)	8	20	42	47.19

Table 15: Participants' use of assistive software

Key: Participants were asked to tick as many as applied

A significantly higher number of doctors with SpLD reported using informal strategies as well to help them in the workplace (see Table 16). Out of the 30 participants with SpLD who said that they do use or sometimes use informal strategies, 21 participants responded to a subsequent open ended question regarding the types of strategies they use. The most frequently stated were dictating written work (n=6) or using colleagues to assist them in some form of support (n=5), asking colleagues to check their work (n=4), or to double check their own work (n=3). This checking was also described more as a constant process that applied to the majority of their written work including referrals, prescriptions, letters and reports. One participant commented that they use various coping strategies developed as a child and another relied on the support of their team, explaining that their colleagues' strengths help support some of their weaknesses. A different participant also explained that they disclosed their SpLD to their team as a form of coping strategy and another participant reported that they asked others to complete jobs that they are less confident in and which they fear will 'show up' their SpLD. Other participants mentioned using strategies such as:

- Mentoring system – supportive colleagues (n=3)
- Taking work home or to a quiet place to complete (n=3)
- Making lists (n=3)
- Note taking (n=2)
- Taking extra time for work before and after shifts (n=2)
- Effective use of secretarial support (n=2)
- Synchronisation of PDA (n=1)
- Completing dictation immediately after seeing patients before leaving clinic (n=1)
- Using highlighters to make notes colourful (n=1)
- Developing standard formats and templates for written documents (n=1)
- Debriefing with colleagues (n=1)
- Keeping personal diary of tests requested and patients requiring follow-up (n=1)
- Making sure they are fully prepared in what they are doing and have completed tasks in good time (n=1)

Out of the 40 doctors without SpLD who also reported using informal types of coping strategies 22 doctors gave examples of these, with some being similar to those used by doctors with SpLD such as making lists of tasks to complete (n=2) however only one participants mentioned systems of checking for error. A frequently reported strategy reported by these doctors was 'discussing' work with colleagues (n=8) or asking for 'advice' (n=3), while others reported using:

- Reference material, internet resources, patient.co.uk (n=3)
- Methods to enhance memory (n=2)
- To do lists and making notes (n=2)
- Relaxation/yoga (n=1)
- Time management strategies (n=1)
- Methods to deal with stress (e.g. go for a run) (n=1)
- Counselling skills learnt during psychiatric work in the past, cognitive behavioural techniques (CBT) etc (n=1)

When participants were asked if any issues have ever been raised in relation to errors or poor performance significantly more doctors with SpLD reported 'yes', although both groups of participants reported coping well in their current roles to an equal extent (see Table 16).

	SpLD		Non-SpLD		Sig. (X^2, Chi
	Number	Percentage	Number	Percentage	squared)
Do you use any informal strategies to help you do your job?					
Yes	21	56.76	29	32.58	
Sometimes	9	24.32	11	12.36	0.001*
No	7	18.92	49	55.06	
Have any issues ever been raised in relation to errors or poor performance?					
Yes	13	32.50	12	13.64	0.011*
No	27	67.50	77	87.50	
Please indicate the extent to which you feel you are currently coping in your job?#					
	Mean with SpLD	**SD with SpLD**	**Mean without SpLD**	**SD without SpLD**	**Sig. (Mann Whitney U)**
	3.68	0.94	3.74	0.70	0.847

Table 16: Participants' responses to strategies in the workplace.

Key: * significant at p<0.05   SD=Standard Deviation

Responses 1=Not at all, 2=Slightly well, 3=Moderately Well, 4=Very Well, 5=Extremely well

Career

The next section of the questionnaire covered career and specialty choices. Participants were asked to rate how important each of a list of 8 factors were in influencing their career choice on a 5 point Likert scale ranging from 1 (very important negatively) to 5 (very important positively).

	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
How important were each of the following factors in influencing your career choice?					
Personal Preference	4.75	0.44	4.51	0.68	0.056
Specialty Characteristics	4.60	0.55	4.48	0.55	0.231
Intellectual Content of Specialty	4.35	0.70	4.05	0.63	0.012*
Specialty Training Process	3.55	0.96	3.72	0.79	0.352
Intellectual Ability	3.95	0.82	3.69	0.62	0.099
Career Opportunity	4.00	0.78	3.91	0.76	0.621
Lifestyle After Completing Training	3.93	0.80	3.85	0.98	0.807
Role Models	3.90	0.90	3.95	0.79	0.769

Table 17: Participants specialty preferences

Key:　　* significant at $p<0.05$　　SD=Standard Deviation

　　　　1=Very important negatively, 2=Important negatively, 3=Unimportant,

　　　　4=Important positively, 5=Very important positively

'Personal preferences' was the highest rated of the 8 provided factors as being positively important in influencing the participants' career choices for both groups (see Table 17), followed by 'specialty characteristics' and 'intellectual content of specialty'. The actual 'specialty training process' was rated the lowest for those doctors with SpLD, whereas those doctors without SpLD rated 'intellectual ability' as the lowest important factor. There was only one factor that was rated significantly more important to those with SpLD, in comparison to those without, which was 'intellectual content of specialty' (p=0.012). For those participants who selected the provided 'other' option to describe alternative factors as influencing their career choice, the 2 main reasons for doctors with SpLD were 'family life' and 'personal reasons' which were similar for those doctors without SpLD who stated, 'overall job satisfaction', 'job content', 'flexibility in job location in UK and availability' as well as 'family life'.

There was a significant difference found between those doctors with and without SpLD in relation to being in the specialty they thought they wanted to do when qualifying. In total, half of the doctors with SpLD were in the specialty they thought they would be in

when qualifying as compared to over half of the doctors without SpLD who instead reported that they had changed their mind since then (see Table 18).

	SpLD		Non-SpLD		
	Number	%	Number	%	Sig. (X², Chi squared)
Are you in the specialty you thought you wanted to do when qualifying?					
Yes	20	50	34	39.53	
No, but I'm working towards it	6	15	4	4.65	0.041*
No, I changed my mind since	14	35	48	55.81	
Were there specialties that you specifically chose not to pursue?					
Yes	31	77.50	67	77.01	0.632
No	9	22.50	20	22.99	
Do you think there are certain areas of medicine that are better suited to those with SpLD?					
Yes	16	40	18	20.22	0.018*
No	24	60	71	79.78	
Have you ever considered changing your current specialty?					
Yes	9	22.50	20	23.26	
No	27	67.50	60	69.77	0.983
N/A	4	10.00	6	6.98	

Table 18: Participants thoughts on specialties

Key: * significant at $p < 0.05$

Participants were also asked if they had ever considered changing their specialty. There was no significant difference between the answers given by doctors in the two groups with the majority of both groups reporting that they had not considered changing their specialty. Some of the reasons given by those with SpLD for why they had considered changing included family commitments, job tasks, exam load, and reading and writing difficulties. For those without SpLD, stress and work/life balance were frequently commented on as well as unspecified personal reasons/lifestyle reasons, exploring opportunities and wanting to develop in other areas.

Over three quarters of the doctors in each group agreed that there were specialties that they chose not to pursue. There was no significant difference found between the two groups in this regard, although various specialties were mentioned by both groups as not being pursued in a subsequent open ended question. For those with SpLD, 27.5% (11 out of 40) participants specifically stated surgery as an area that that they chose not to pursue, followed by acute medicine, hospital medicine and psychiatry. For doctors without SpLD, 41% of doctors (23 out of 56) also stated that they did not pursue surgery but without giving any particular reasons, 23% (13 out of 56) said General Practice and other non-SpLD doctors mentioned specialties such as anaesthetics, obstetrics and gynaecology, and paediatrics. Only one participant with SpLD gave the reason that they were 'not good with their hands' as an explanation for not pursuing surgery (see Table 19), with another doctor without SpLD giving the same reason. One doctor without SpLD also stated that they did not pursue a career in surgery as they 'didn't want to spend their working life fighting gender discrimination.'

Those doctors with SpLD also perceived that there were areas of medicine that were better suited to those with SpLD to a greater extent than doctors without SpLD. General practice and surgery were the most frequently stated as being well suited for those doctors with SpLD but it was recognised that this could vary depending on the person's skill set. Those without SpLD who felt that there were some areas of medicine better suited to those with SpLD also recognised that it depends on the individual as to which specialties best suited, but some participants did suggest that surgical specialties or laboratory based work could be particularly suitable; although one participant did note that someone with dyspraxia may have difficulties with manual dexterity skills. In their responses to this question, both groups of doctors acknowledged that dyslexia is a spectrum and it would depend upon where a person's SpLD related strengths and weaknesses were as to which specialties would be particularly suitable. Participants in both groups also explained that everyone has strengths and weaknesses irrelevant of whether they have SpLD and that people will often naturally aim for the job that fits their skills (see Table 19).

	Areas chosen not to pursue	Reasons		Areas chosen not to pursue	Reasons
Without SpLD	Psychiatry	'No sensible content and patients don't usually get better' 'Too many colleagues were disturbed themselves'	**With SpLD**	Psychiatry	'as it was said to be busy and stressful'
	Paediatrics	'long hours and involves sticking needles in kids' 'because of demands of career progression at the time'		Paediatrics	'drug doses have to be calculated all the time and although this would not be an issue with a calculator I never wanted to depend on not getting caught without one e.g. if running to an emergency it could fall from a pocket'
	General Practice	'due to social aspects'		General Practice	'I don't have the attention span to sit in a room'
	Emergency medicine	'I found it had a slightly blunting effect on compassion due to the emotional bombardment of exposure to continuous death'		Hospital medicine	'I did not believe I would be able to cope long term with in these fields due to my disability and specific mix or abilities'
	Obstetrics	'I felt women were sometimes uncomfortable with me as a man'		Cardiology	'because I was unsure of my practical skill'
	Pathology/ radiology	'I like patient interaction'		Surgery	'I'm not good with me hands' 'didn't like most of the surgeons very much!'
	Anaesthesia	'I'm not very good at maths/physics'			

Table 19: Specialties specifically not pursued by participants

Doctors with SpLD

Those participants who had been diagnosed with SpLD or suspected that they had SpLD went on to complete further sections of the questionnaire, which were specifically tailored to collect more information about their SpLD and focused on their experiences of having SpLD. Out of the 129 participants who took part in this study, 40 of the participants had been diagnosed with or suspected that they had SpLD.

Participants did not report being diagnosed with any other major disabilities, although one of the participants also had a diagnosis of Tourettes syndrome. In total 9 of the participants reported being diagnosed with a mixture of dyslexia, dyspraxia, dyscalculia and attention deficit disorder (ADD). Of those who reported having SpLD (n=40), 6 considered themselves disabled and 5 out of those 6 participants said that they considered themselves due to their SpLD. The other participant reported that they considered themselves disabled due to a physical disability.

Level of severity	Number
Very Mild	8 (20%)
Mild	14 (35%)
Moderate	15 (37.5%)
Severe	2 (5%)
Very Severe	1 (2.5%)

Table 20: Number (%) of Participants severity rating of their SpLD.

As the severity of SpLD can vary, the participants were asked to rate how severe they thought their SpLD to be. Only one of the participants considered their SpLD to be 'very severe' with the majority of participants rating themselves to have 'moderate' and 'mild' levels of severity (see Table 20 for details).

Overall effects of SpLD

To find out if having SpLD is believed to have any effects on being a doctor and indeed their lives, participants were asked to rate statements concerning the impact of having SpLD on a 5 point scale of frequency from 'always' to 'never'. When asked 'does having SpLD impact on your overall life?' the majority of participants agreed that it does sometimes have some level of impact (see Table 21) with only 7.5% claiming that they are 'never' affected by SpLD in their general life. In terms of how often they felt having SpLD potentially impacted on their current work position, a fifth of participants reported that it 'usually' has an impact on their work.

	Always	Usually	Sometimes	Rarely	Never
Does having SpLD impact on your overall life?	4 (10%)	6 (15%)	16 (40%)	9 (22.5%)	3 (7.5%)
Does having SpLD impact on your current work position?	3 (7.5%)	8 (20%)	9 (22.5%)	12 (30%)	6 (15%)
Do you try to avoid certain aspects of your work because of having SpLD?	3 (7.5%)	6 (15%)	15 (37.5%)	5 (12.5%)	9 (22.5%)

Table 21: Number (%) of participants rating of 'Impact of SpLD'

Although the combined scores given for the everyday skills and clinical skills by doctors with SpLD were significantly different (as reported in section on 'General and Work Related Skills'), such that these doctors rated their everyday skills more poorly than their clinical skills, there was no difference between the score given for how these doctors feel SpLD impact on their general everyday life and work (related samples Wilcoxon signed rank test P=0.061).

In order to ascertain how having SpLD impacts on doctors, participants were asked if there were any aspects of their work that they avoid because of having SpLD. When responding to this question over a third of participants claimed that they 'sometimes' avoid tasks while 7.5% claimed that they 'always' avoid certain aspects of their work (See Table 21). When asked what aspects of their work they avoided, there were lots

varied responses across the group. One of the most common type of tasks people described avoiding were tasks that involved writing (n=12). Participants described avoiding tasks including: writing discharge letters, writing essays, writing prescriptions, taking notes on ward rounds and writing on the board when teaching or in meetings, with some explaining that it was due to a fear of misspelling words or having illegible handwriting. One participant explained that they have been particularly keen to work on establishing electronic patient records and initiating support such as dictation across their department as a way of reducing the amount of actual written work.

Another commonly mentioned avoided task involved speaking or completing certain tasks in front of others (n=8). Tasks such as giving presentations, 'off the cuff speaking' and speaking in meetings were described as ones that participants did not like and tried to avoid, due to difficulties expressing their thoughts in words or reading aloud in front of people. Participants also described not liking being in a situation where they were expected to remember information unless they were able to write down notes (n=3). They also did not like completing drug calculations without a calculator (n=1), or performing practical procedures (n=3) or tasks that involved sequencing such as following directions or instructions (n=2).

Reading was another aspect that participants described avoiding (n=3), including reading lots of reports or long sections of text whether it be for work or exams, with one participant explaining that they have difficulties in summarising facts that they have read.

When asked if they sometimes tried to hide their SpLD, the results from the participants were quite evenly distributed across the responses available (see Table 22) varying from 'strongly agreeing', to 'strongly disagreeing'. Participants may have tried to hide some of their difficulties due to fear that they would be judged, as a fifth of doctors strongly agreed with the statement that they thought others would judge them for having SpLD and over a quarter were inclined to agree. Participants also seemed to be divided in their responses to a question relating to the notion that having SpLD would make them more prone to making an error. However when asked if they felt that having SpLD would make them a better doctor, 30% of the participants were 'inclined to agree' (see Table 22).

	Strongly Agree	Inclined to Agree	Neither	Inclined to disagree	Strongly disagree
I sometimes try to hide my SpLD	6 (15%)	9 (22.5%)	8 (20%)	7 (17.5%)	8 (20%)
I think that others will judge me for having SpLD	8 (20%)	11 (27.5%)	8 (20%)	6 (15%)	5 (12.5%)
Having SpLD makes me more prone to making errors	2 (5%)	10 (25%)	10 (25%)	5 (12.5%)	11 (27.5%)
Having SpLD makes me a better doctor	4 (10%)	12 (30%)	14 (35%)	6 (15%)	2 (5%)

Table 22: Number (%) rating of 'Impact of having SpLD'

Disclosure

In the final section of the questionnaire, participants were asked about who they had disclosed their SpLD to. Whilst doctors with SpLD were more likely to agree that a doctor with SpLD would have more strengths in the workplace when compared to doctors without SpLD, overall only a quarter (n=10) of the doctors had disclosed their SpLD when they applied for their current job. The participants were most likely to disclose their SpLD to their family followed by their friends.

	Peers	Colleagues	Friends	Family	Patients
Yes - all the time	6 (15%)	6 (15%)	12 (30%)	20 (50%)	1 (2.5%)
Yes - sometimes	22 (55%)	23 (57.5%)	18 (45%)	12 (30%)	15 (37.5%)
No - never	10 (25%)	9 (22.5%)	8 (20%)	6 (15%)	22 (55%)

Table 23: Number (%) of people participants chose to disclose to.

The overall majority of the participants (see Table 23) reported that they would never tell a patient that they had SpLD although over a third of participants would sometimes disclose their SpLD to a patient. However only one participant reported that they

always tell their patients about their SpLD. In response to a previous question another participant explained that they use their experience of SpLD as a positive example for patients and how by being open about their SpLD with others in their working network, they were able to create a strategy to help prevent errors.

Discussion

The findings from this study demonstrate that although there were areas where the views and experiences of doctors with SpLD differ to those without SpLD there were also similarities that all doctors share. While doctors with SpLD did appear to experience some SpLD related difficulties in the clinical environment, the similarities in ratings between the two groups suggested that the compensatory coping strategies that they have in place render their self perceived clinical performance level and clinical experiences no different to those doctors without SpLD.

Working life as a doctor is notoriously stressful (Tattersall et al., 1999; Firth-Cozens, 2003) for all, regardless of whether the doctor has SpLD or not. Irrelevant to whether they had SpLD or not, most of the doctors in this study strongly agreed that their work could be stressful but that they felt that they were coping well. Some research has suggested that when doctors become stressed patient safety can be compromised (Firth-Cozen and Greenhalgh, 1997) however results from this study showed that both groups of doctors believed that they were still able to do their job well. Potential reasons as to why there were no difference found between these two groups of doctors could be due to the fact that those doctors with SpLD reported using more strategies to help them cope with stress in their work or because they were in different specialties to doctors without SpLD.

Stressful work environments have been found to exacerbate the difficulties caused by SpLD in nurses (Illingworth 2005), resulting in individuals trying to establish effective coping strategies to compensate for these difficulties; this could explain the higher reported use of strategies by those doctors with SpLD. Previous research found other factors to exacerbate SpLD related difficulties were pressure to complete work in a strict turnaround time, the speed required to complete tasks in clinical practice and the negative attitudes and behaviours of colleagues, which can result in negative effects on confidence and self esteem of those with SpLD (White, 2007).

Research has found that those with SpLD are often tenacious (Sanderson-Mann and McCandles, 2005), and more self aware, and they are able to utilise their strengths by being creative problem solvers and developing strategies to combat any difficulties experienced (Morgan and Klein, 2000; Morris and Turnbull, 2006). This could suggest that those strategies used by the doctors in this study are successful strategies and this could explain why there was no difference between the two groups in how stressful they think their job is. It could also explain why doctors with SpLD reported that they are coping well, because the doctors with SpLD have effective and successful strategies in place to cope. The average length of time that doctors in this study had been in employment was 9.2 years and the majority of the participants were diagnosed with their SpLD during university or school, so it is also likely that the doctors with SpLD have already developed and have fully established coping strategies in place to deal with any work-based issues.

The doctors with SpLD did report being more concerned that they would make a mistake in their work than the doctors without SpLD, however this does not necessarily translate into them being actually more likely to make a mistake. As mentioned above, previous research has found that doctors with SpLD have been found to have higher levels of self awareness, so the doctors with SpLD in this study could be more aware of where their difficulties are and thus they are able to identify the clinical areas where these difficulties might be a potential threat, and so they can create a strategy to help prevent problems. Previously research has also suggested that those with SpLD have lower self esteem, confidence and self belief (Burton, 2004, BDA, 2013), all of which can be caused by fears of stigmatisation (Nalavany et al., 2013). For example, Morris and Turnbull (2007) found that dyslexic nurses reported being scared that they would make a mistake for fear of being disparaged. This could go some way to explaining why doctors with SpLD were more concerned about committing an error.

Skills

The types, number and severity of traits of SpLD can vary significantly from person to person and also depending upon the situation that the person is in. Difficulties normally involve sequencing and processing information which causes difficulties with tasks such as reading and writing, but can also include difficulties with short term memory,

concentration and motor skills (Murphy, 2010). As has been found in previous research (Illingworth, 2005; Miller et al., 2009) doctors with SpLD rated themselves as significantly lower than the doctors without SpLD for the general writing skills of writing by hand and writing legibly, and also the work-related skills of communicating in writing with their colleagues.

The scores from those with SpLD in the general skills list reflect the stereotypical difficulties that one would expect someone with dyslexia to have, such as remembering information, spelling ability, hand writing, reading and expressing themselves. People with SpLD often have much better long term memories than short term memory (Child and Langford, 2011) which could explain why doctors with SpLD scored their short term memory significantly lower than doctors without SpLD, however there was no difference between the scores for long term memory. Although those with SpLD have been found to have strong visual skills (Schneps et al., 2011), there was also no difference found in this study between the two groups regarding processing visual information.

The doctors with SpLD rated their general skills as significantly lower than doctors without SpLD for 8 out of the 13 skills listed, but they only rated two out of the 26 clinical skills as significantly lower. This suggests more similarity between the two groups in how they rate their performance of clinically related work skills in contrast to general skills. Possible reasons for this could be that doctors have to reflect on their working practices regularly, are involved with training medical students and also have to observe their peers and therefore they have to know what standard their clinical skills need to be. Whereas they may not have thought about their more general skills to the same level of detail and thus they may not know what standard they should be at. It may also be easier to rate oneself against clinical skills as these skills were more specific and related directly to regular tasks that the doctors perform; in contrast the list of general skills was slightly more ambiguous and possibly open to interpretation. The element of rehearsal may also play a role in doctors rating their clinical skills higher than their general skills. As stated previously, the average time the doctors had been in their role was just over 9 years, therefore the doctors would have been able to develop any coping strategies required for the tasks involved in their clinical role, and have been performing these specific clinical tasks regularly for many years

The fact that doctors with SpLD were found to use more coping strategies in the workplace (which will be discussed below) and scored no differently on the clinical skills tasks, yet scored very differently on the general skills tasks, could imply that these doctors are applying strategies to work life and not home life. This could be because their home lives are less stressful and they are not in a competitive environment where they are judged on their performance. Also concerns about disclosing their SpLD or performing tasks that may highlight their SpLD are potentially reduced in the home setting, and thus not exacerbating their SpLD difficulties. Goffman (1959) used the analogy of the theatre to discuss how people use impression management when on stage to convey their role and perform to their audience, contrasting with when backstage where they can relax in private and have no need to perform. Within the context of this study, the front stage would be the clinical environment where the doctors are performing the professional role they are expected to play by society; they have to create strategies to cover their SpLD and manage people's impressions of them. Then backstage would be when the doctors are at home or away from the clinical environment, where they can relax and potentially be more like their real selves and not having to worry about their SpLD being evident or having to cover up any SpLD with strategies.

On the everyday skills, doctors with SpLD scored themselves significantly lower than doctors without SpLD for the item 'expressing your thoughts verbally'. Whereas, when this skill was applied to a clinical setting (discussing medication, treatments and communicating verbally with colleagues) those with SpLD scored these communication skills higher, and not significantly differently to those doctors without SpLD. Reasons could be that perhaps there is more structure to communication when in the clinical setting and so there is less range in communication. Another possible explanation for this particular strength could be due to 30% of the participants who had SpLD having completed a PBL medical course. Previous studies (Prince et al. 2005; Norman, 2008) have shown that those students who complete PBL medical courses are better at communicating than those who complete other styles of medical course.

Another possible explanation for the good ratings of verbal communication in the clinical setting could be familiarisation with the task through training and then repeated experiences during daily work. Rehearsal, in terms of performing the same tasks repeatedly in work or having a similar framework for work based tasks, and the

structure inherent in the boundaries of work related communication could lead to doctors with SpLD positively viewing their skills in these areas. This is in contrast to Morris and Turnbull's (2007b) finding that dyslexic nurses had difficulties in communicating verbally, which directly affected their work. Previous research has noted that nursing students experienced difficulties with spelling everyday words, reading and writing, short term memory and concentration which then led on to experiencing difficulties relating to these skills in clinical tasks (White, 2007).

Other clinical tasks that were found to be problematic for nurses with SpLD include drug calculations and administration, giving and receiving handovers, reading doctors' handwriting, filling in forms, remembering to do tasks, organising and prioritising workloads, note taking, and pronunciation of drug names (Illingworth , 2005; Morris and Turnbull, 2007; White, 2007). This study, however, found that the doctors with SpLD did not rate themselves as particularly poor in prescribing medication, explaining medication to patients or performing drug calculations, and they rated their performance at a similar level to doctors without SpLD.

In past research, skills such as empathy have been found to be a particular strength reported by dyslexic nurses (Sanderson-Man and McCandles, 2006; Wray et al., 2012). Empathy refers the way in which a person is able to relate to and identify with another person's position and thoughts (Hojat et al., 2002). Empathy is thought of as a desirable personality characteristic and has often been reported as a very important characteristic in doctors (Hemmerdinger et al., 2007). Hojat et al. (2002) reported that previous research into empathy has found empathy linked to factors such as moral reasoning, positive attitudes towards elderly patients, positive clinical outcomes and doctor satisfaction; additionally, females have been found to be more empathic and have more caring attitudes than males. However there was no difference in how doctors with and without SpLD rated their empathic skills, although both groups did rate their performance in this area highly. As gender has been shown to be a factor in empathy skills this was also explored in the data, however no gender difference were found so these data were not reported.

Those with SpLD did score themselves significantly higher on 'understanding medical ethical principles, including confidentiality' than doctors without SpLD. This could perhaps be because doctors with SpLD were drawing on their previous experiences of

dealing with SpLD (Morris and Turnbull, 2006) and they feel they can relate more to patients and ethical problems, especially surrounding confidentiality.

The results from the doctors with SpLD for the clinical related skills support the results from the earlier questions where no difference was found between how doctors rated themselves on their current work performance and how they cope with their work and would suggest that their clinical practice is not affected by the difficulties caused by SpLD. However significantly more doctors with SpLD reported having issues raised in relation to errors or poor performance in work than doctors without SpLD. This could imply that the clinical performance of doctors with SpLD is affected by SpLD. Those doctors with SpLD could also be more likely to feel that an issue had been raised due to being more susceptible to criticism and being more self critical, as a result of previous negative experiences or stigmas. The fact that both groups of doctors rated their clinical skills very similarly may suggest that these issues are not related to these clinical skills. The data does not provide any clear reasons as to why this difference has occurred. No data were collected regarding the actual number of issues raised or the areas these related to, so it is not known whether these errors / poor performance were related to difficulties associated with the doctor's SpLD. The doctors with SpLD did describe completing thorough error checks on their work. This could impact on the overall time taken to complete their work. Doctors often work within strict time limits and therefore not meeting these could result in issues with performance. For example, if doctors are working more slowly than their colleagues there might be work left undone at the end of a shift, which would have a knock on effect by leaving more work at handover for colleagues.

Some of the participants with SpLD who declared that issues have been raised with their work also reported being diagnosed at work. As such, it is possible that these the doctors could have been in denial about their difficulties (potentially not want to be seen as 'different') or have been unaware that they had SpLD and the 'issues raised' could have been the trigger for their assessment and diagnoses; however, as previously stated, it is not known if these issues were related to their SpLD. This higher rate of issues raised regarding errors or poor performance might also account for why those doctors with SpLD reported being more concerned that they would make a mistake in their work than those doctors with SpLD. In contrast to these findings, previous research has found potential error risk factors have been linked to doctors

having a low awareness of their own potential to make errors (Dean et al., 2002). In interviews doctors reported that they were unaware that they had ever made an error, but this may have been due to others correcting their mistakes and not informing the doctor or lack of reporting due to potential embarrassment about the mistake (Dean et al., 2002).

The major concern relating to a clinician with SpLD is that they will make an error involving medication such as drug calculations/administration or writing prescription (Morgan and Chambers, 2004; Morris and Turnbull, 2007). However, there are many reasons as to why any doctor could make a mistake and there is no conclusive proof that someone with SpLD would be more or less likely to make one. A study by Millward et al. (2005) found tentative results suggesting that having dyslexia could cause difficulties for nurses when completing certain clinical tasks involved with drug administration, however they emphasised that in reality there are many other factors that could influence performance in the workplace, such as cognitive overload or stress induced fatigue. An investigation into prescribing errors by Dean et al. (2002) found that errors were often made due to prescribers not following the relevant rules or simply due to slips in their attention. Factors such as communication, workload, whether the prescription was for their own patient or not, and doctors' wellbeing were also linked to errors rates in prescribing (Dean et al., 2002). Ignorance and inexperience were also found to be causes of mistakes in junior doctors (Baldwin et al., 1998). These findings demonstrate that all doctors are susceptible to error and it would be unfair to conclude that it was just those with SpLD who are at risk of making such errors. A suggested way to reduce the risk of error was to enable doctors to recognise the situation in which they are potentially more likely to make an error, for example when dealing with a heavy workload or dealing with unusual drugs (Dean et al., 2002). A study by Dornhorst et al. (2005) highlighted the need for more support for doctors to improve their overall working lives by implementing better secretarial support and managerial support, which could in turn, reduced doctors' error risk rate.

It would be interesting to know what happened to the participants in this study who had had issues raised due to errors or poor performance. Firstly, was this issue due to SpLD related difficulties? Then what was the outcome, for example, were they given assistive software and is this why those with SpLD reported higher use of such programmes? Does this explain why doctors with SpLD think they are more likely to

make a mistake, because they have done so in the past or because they feel uncomfortable in the workplace maybe due to having negative coping strategies (outlined below)? Whatever the cause of such performance issues, both groups of doctors in this study reported that they were inclined to agree that they are coping well in their job.

Support - formal and informal coping strategies

To help overcome any potential barriers in the workplace support is often available to those with SpLD. Such support in the workplace can come in various forms and can be used by everyone, not just those with SpLD. It can be obtained through formal means and put in place through schemes or by employers or it could be something informal, small and created by an individual themselves. It can be given through supplying physical items to help people overcome barriers (for example, assistive software, spell-checkers, digital voice recorders) or from individual people, mentors, or support groups. For those with SpLD, support in the workplace can often be key to establishing a successful work environment and overcoming any barriers they face.

A higher percentage of participants with SpLD used assistive software to help them in the workplace when compared to doctors without SpLD. Spell checks were the most popular choice for both groups of doctors, along with mind mapping software and voice activated software for doctors with SpLD. For doctors without SpLD the rest of the assistive software was used by a much smaller number of doctors, although one of the participants who did not have SpLD explained that they used voice activated software as their department was trying to introduce the use of this software across their team. The use of voice recognition software in the medical world is being encouraged as potential advantages could include improvements in doctors' efficiency, enhancements in patient safety and decline in expenditure (Issenman and Jaffer, 2004; Parente at al., 2004). The use of such systems in the National Health Service (NHS) has mainly been in Radiology departments thus far, as there are often long delays in the production of written documents due to issues with employing medical secretaries (Patel and Harbord, 2012). Patel and Harbord (2012) concluded using voice dictation software significantly reduced the time taken to produce documents, with the advantage of only needing a small amount of training for secretaries which results in an overall increase in efficiency. This is supported by Zick and Olsen (2001), who recommended the use of

voice recognition software for all physicians due to quicker turnaround times of documents and reductions in cost. This highlights the point that assistive software and support can be useful to all and not just those with SpLD.

However, whilst such evidence indicates that voice recognition software has been found to be useful to all doctors, not just those with SpLD, only 7 out of the 40 doctors with SpLD in this study reported using this type of software. This could be as more formal types of support, such as assistive software, have been found to be limiting when used in the clinical environment due to users needing to acquire the knowledge of how to use them (White, 2007). It has been suggested that the success of the use of technology in supporting nursing students with dyslexia is dependent on the individual that it is given to, as using technological support successfully requires the user to be interested and committed to learning how to use it (White, 2007). The clinical environment itself may act as a barrier to support for those with SpLD as it may not be conducive to these types of formal support. Other reasons for limited success of technology in the clinical setting included concerns over the safety of equipment and resistance of staff towards their use (White, 2007). This could be why participants appeared to prefer to use more informal strategies to help them with dealing with issues developed from work. Alternatively, lack of use of assistive software could be because the doctors have good medical secretaries and therefore do not require technology.

Doctors with SpLD may have preferred to use more informal coping strategies (which will be discussed below) to deal with any difficulties or barriers found in the workplace as opposed to seeking formal support, perhaps because they were unsure of where to seek help. Hu et al. (2012) reported that many doctors did not seek support in the workplace due to perceived lack of time as well as having concerns about confidentiality, negative effects on their career prospects and negative stigma. Doctors may also have used more informal strategies as they may not have been diagnosed with or given the label of having 'dyslexia' or 'SpLD', which is often required to seek formal support. The doctors may also have preferred less obvious formal strategies as this allowed them to manage the impressions they were making to others and would not make it obvious that they are using equipment that others are not. This would enable them to keep their hidden disability hidden and therefore they would not be seen to be deviating away from the 'norm'.

A significantly higher number of participants with SpLD did use informal strategies to help them in the workplace when compared to doctors without SpLD. The types of strategies used varied from note taking and making lists, taking work home or to a quiet location, mentoring systems and taking additional time to complete work (before and after hours). When looking in detail at the informal strategies used by doctors with SpLD the most frequently stated were double checking their own work and asking colleagues to check their work or assist them with some form of support. In a questionnaire study Morris and Turnbull (2007b) found that dyslexic student nurses would also check and double check their work and often ask their colleagues to check the accuracy of their work. Other coping strategies for these student nurses included dictionaries and spell-checkers, colour overlays and note taking techniques. Qualified nurses and Health Care Assistants with dyslexia also used coping strategies to overcome difficulties such as note taking, carrying a phrase book and rehearsing sequences for tasks (Illingworth, 2005). An important point highlighted by Illingworth (2005) was that double checking work should be an automatic process for all nurses and not just those with SpLD, however those with SpLD in this study described triple and quadruple checking to ensure that their work is correct.

However it was not just those doctors with SpLD who reported using informal coping strategies. Doctors without SpLD also described using informal types of coping strategies to help them in the workplace, with some being similar to those used by doctors with SpLD such as making lists of tasks to complete and decision making prompts and aids. They also commented on using more physical types of strategy to help cope with stress such as yoga, running and counselling skills. Similarly to those with SpLD, these doctors frequently reported 'discussing' challenges with colleagues, as useful coping strategy. This could suggest that all doctors have experienced difficulties or certain barriers to success in the clinical environment and that in fact, as Kahtan (1999) stated, 'all doctors are disabled, but some are more disabled than others' (pp.260).

When describing some of the informal coping strategies that doctors without SpLD use, the most common strategy reported by 13 out of the 22 doctors was they 'discuss' their issues with their colleagues or use some other form of communication with fellow doctors, such as using professional chat rooms for opinions. One participant described

using coffee breaks for discussions with their colleagues as a way to deal with 'the burden of uncertainty' and others explained how discussions with colleagues about patient difficulties were a natural part of their job. Fothergill et al. (2004) also found that psychiatrists use communication and support from their colleagues as a coping strategy to deal with stress caused by their work. Differing slightly from this, doctors with SpLD described using colleagues to 'check' their work for errors, for example re-reading letters or prescriptions for spelling mistakes as opposed to informally discussing patient related queries with other colleagues. One participant explained how they are 'supported' in their work by an excellent team, describing how 'some of their strengths obviously overcome their weaknesses', while another explained how their colleagues check all of their formal writing.

From the terms that they use, doctors with SpLD seem to describe the support they seek in a way that would imply that they are weaker than their colleagues; in that they do not say that they 'discuss participant cases' with fellow doctors, as the doctors without SpLD did, instead they talk about 'getting second opinions if unsure' or getting colleagues to check their formal writing for mistakes. Out of the 22 participants with SpLD who responded to this question, none of them used the term 'discuss' whereas 8 doctors without SpLD used that term when describing their informal coping strategies involving their colleagues, implying that they see themselves on a more equal level with those colleagues. One doctor with SpLD even reported asking others to do the jobs that may show up their disability. This kind of behaviour is a negative coping strategy; these are discussed below.

These results would appear to suggest that doctors are communicating differently with each other depending upon if they have SpLD or not. Discussing issues with colleagues is suggested by others (Hu et al., 2012) to help prevent medical mistakes, and communication between doctors has been found to be an extremely important factor in preventing stress in the workplace (Cohen et al., 2005). In a clinical environment there are many different types of challenges that a doctor has to face, thus making communication with colleagues an essential skill in enabling a doctor to perform their role well. Those doctors with SpLD seem to view discussions as a means of getting help from someone who does not have their particular weakness (i.e. the thing they are getting checked) and thus they could be missing out on having more equal footing discussions with their colleagues.

In regards to the other strategies reported by doctors with SpLD, they described rigorous processes that they go through to ensure that their work is correct. Some of the participants reported using dictation while others explained that they prefer to complete their work in a quiet environment aiding concentration levels and will often take work home if they are unable to find such a place at while at work. The lack of spell-check on the clinical record systems was cited as a problem for one doctor with SpLD. Writing notes and lists was described by several doctors with SpLD to aid short term memory. The doctors with SpLD often described being organised and prepared in doing their work and having it completed in time to be checked, or doing tasks as soon as possible so they have time to complete it and so they do not forget any details or to do the task. This thoroughness could explain why, when asked to rate their 'organising working load' skills on the previous scale question there was no difference found between the two groups of doctors, despite organising skills being an area where those with SpLD are often thought to have difficulty (Wright, 2007). This said, Murphy (2010) found that dyslexic radiography students marked organising skills as strength.

Career

The type of specialty chosen by a doctor could play an important part in ensuring that doctors with SpLD are able to cope and apply the strategies that they require to perform their job successfully. The results from this questionnaire found that more doctors with SpLD were in the specialty they thought they wanted to do when qualifying when compared to doctors without SpLD. This again could be a demonstration of heightened self awareness in that they knew what specialty they would prefer, or perhaps which ones would be better suited to their strengths.

When deciding upon a specialty all of the doctors reported that 'personal preferences' were the most important factors in influencing their career choice followed by the 'specialty characteristics'. This is confirmed by previous studies which also found that personal and family circumstances (Dornhorst et al., 2005) were influences in career specialty choice, along with 'quality of life' and 'job content' (Lambert et al., 2003). Intellectual content was the only career influencing factor where there was a difference between the two groups of doctors, with those doctors with SpLD rating it as significantly more important.

The most frequently stated specialty that both groups of doctors reported they had specifically chosen not to pursue was surgery, with doctors with SpLD explaining that this was due to coordination difficulties and a female doctor without SpLD claiming that they feared gender discrimination would be an issue. Lambert et al. (2003) also found that a high number of doctors had chosen not to pursue a career in surgical specialties giving reasons such as quality of life concerns and it being considered too stressful. Balch and Shanafelt (2010) explain that although a career in surgery can be incredibly rewarding, it can also cause extremely high levels of stress and a significant chance of burnout. This level of stress / burnout has also been related to medical errors made by surgeons (Shanafelt et al., 2010). Accounts like these could explain why so many doctors in this study, not just those with SpLD, decided against the specialty. But it is perhaps especially pertinent for doctors with SpLD given that working under high pressure can exacerbate SpLD related difficulties (Illingworth, 2005). Balch and Shanafelt (2010) advised that surgeons must not think that they are alone in their experiences at work and that during stressful times they must communicate with their colleagues, have emotional self awareness and create support system strategies to help deal with their stress difficulties. Interestingly this advice given to surgeons to help them deal with their work has a similar resonance to that given to those with SpLD to help them deal with their workplace difficulties.

Many of the doctors with SpLD also suggested psychiatry, paediatrics and acute and hospital medicine as areas they did not want to pursue as some were unsure about their practical skills or their attention span or if the environment would be 'busy and stressful'. Doctors without SpLD also stated that they did not pursue certain specialties, particularly paediatrics and general practice. Lambert et al. (2003) also found that doctors did not choose paediatrics again for 'quality of life issues' such as heavy pressured work environment and long hours, while concerns about poor career prospects were reasons given against obstetrics and gynaecology.

Stress in the clinical environment for all healthcare workers has been documented as an issue, but doctors are considered to be at particularly high risk (Coomber et al., 2002). The varying levels of stress found in medical specialties could account for some of the 40% of SpLD doctors in this study who reported that they had considered changing their career. Family commitments, job tasks, exam load, and reading and

wring difficulties were reasons given for contemplating a change in career. Personal reasons/lifestyle reasons, exploring opportunities and wanted to develop in other areas and factors relating to work/life balancing were given reasons as to why a fifth of doctors without SpLD had thought about changing specialties. Previous studies have demonstrated, though, that it is not particularly unusual for doctors to change their career choices especially earlier on their career (Goldacre and Lambert, 2000; Parkhouse and Ellin, 1988) due to career prospect reasons and re-assessment of personal skills and abilities (Parkhouse and Ellin, 1988).

It is important to note that gender has been found to play a significant role in choosing a medical specialty career, followed by personality traits, career motivation and life goal aspiration (Buddeberg-Fischer et al. 2006). For example, surgical specialties have been found to be more appealing to males than females (Baxter et al., 1996). Buddeberg-Fischer et al. (2003) reported that male doctors were more likely to choose surgical specialties stating influencing factors such as 'high technological work; 'research opportunities' and 'high income', whereas females were more likely to choose gynaecology and paediatrics due to factors such as 'work with patients' and 'short time for completing specialisation'. A large number of participants involved with this study were female (64.34%) and out of those participants who had SpLD over three quarters of those were female, which could account for some of the variance in career preferences. However there were no significant gender differences found in the results.

A significantly higher proportion of doctors with SpLD thought that there were career specialties that would be better suited to a fellow doctor with SpLD than doctors without SpLD. Despite surgery being stated as a specialty that was avoided by the majority of both groups of participants, surgical specialties and general practice were areas thought to be more suited to those with SpLD by both groups of doctors. Participants appeared to be basing this on surgery being a practical specialty and concluding that often those with SpLD are better at practical tasks and therefore surgery would fit those criteria.

Two participants with SpLD expressed that they thought surgery may be problematic for those with dyspraxia. Previous research has also suggested operating and surgery may be difficult environments for nurses with dyslexia (Illingworth, 2005). One participant with SpLD in this study suggested that any medical specialty that used good

software such as radiology or pathology would be beneficial to a doctor with SpLD. Specialties that involved being 'on call', with a significant listening component and with larger writing aspects were also suggested by the participants with SpLD as specialty characteristics that would not be suited to doctors with SpLD. Laboratory-based areas such as pathology were also suggested areas by doctors without SpLD. Specialties that were slower paced, with minimum amounts of writing and lower patients turnover rates were more preferable to those nurses with dyslexia as they were able to get to know their patients, develop routines, a sense of team work and to learn people's names, and the nurses also thought that working in faster paced environments would exacerbate their difficulties (Morris and Turnbull, 2006; White, 2007).

Overall having SpLD may have had a small influence over the specialties chosen by the doctors, although factors such as personal preferences appeared to have played a larger role. This is similar to results from Morris and Turnbull (2007) who found that dyslexic nurses reported that they did not consider their dyslexia to have influenced their choice of work setting.

Doctors with SpLD

The definition of a disability in the Equality Act of 2010 incorporates developmental disorders such as dyslexia and dyspraxia. However this is only relevant for the purposes of this act and it is up to the individual concerned whether they class their SpLD as a disability. Most of the participants who had a diagnosis of dyslexia had been diagnosed whilst attending university and a few of the participants considered themselves to be disabled due to their SpLD. One participant in this study explained that they felt considering themselves to be 'disabled' would be problematic, in that people have lots of misconceptions about SpLD. It is these misconceptions and negative attitudes by society that according to the social model of disability (Oliver and Barnes, 1998) transform impairments into disabilities. This participant in Study 1 also suggested that when considering other disabilities, they felt that theirs was not equal and the fact that they were in a high performance job made a difference to this. Their definition of a disability appeared to be based on the severity of the impairment and the severity of the impact on them. They went on to explain that they take their disability very seriously as they would not want it to impact negatively on others and that they try to be aware of their disability in order to adapt accordingly.

In accordance with the medical model of disability, Elliott and Gibbs (2008) described how a diagnostic label is required to enable individuals to find the most effective solution to any difficulties faced. A dyslexic nurse in a study by Illingworth (2005) described using their diagnosis positively and as a way of being able to obtain the support they need to succeed. However another participant in the same study described being 'shocked' when they thought about being referred to as disabled and explained how the impact of labelling a person with dyslexia as 'disabled' could negatively affect that individual's self esteem and confidence.   Riddick (2000) however described how despite having medical roots, the term 'dyslexia' is often viewed by many dyslexics as a more socially valid label and having this label will enable them to have access to specialist support, societies and role models etc.

Overall in this study participants felt that having SpLD had at some level impacted on their everyday lives, but slightly lower levels of impact were scored in relation to the impact of their SpLD on their current work. This demonstrates that doctors are aware of their SpLD and that it is having an impact on all aspects of their lives; however for some this level of impact is not classed as significant enough to warrant the label of a 'disability'. There was only a small proportion of participant who reported that their SpLD never impacted upon their work, but this could be due to having chosen a suitable specialty and having successful coping strategies in place or alternatively to a lack of self awareness about the actual impact. A previous study (Morris and Turnbull, 2007) also concluded that SpLD related difficulties do impact on clinical work particularly with tasks involving spelling, short term memory and reading and also pronunciation. These difficulties have also been found to have a negative effect on confidence (Child and Langford, 2011).

Negative coping strategies

It is not just the difficulties with certain tasks that can be problematic for those with SpLD. As mentioned previously, the process of experiencing these difficulties can induce feelings of frustration and annoyance, potentially causing stress and anxieties and result in people using avoidance techniques (Millward, 2004). Dyslexic student nurses reported feelings of embarrassment and anger resulting from their dyslexic difficulties, which led to concerns over what their colleagues thought of them and

consequential failure on tasks (Morris and Turnbull, 2006). As a way of trying to prevent these feelings the student nurses described methods that they had devised to avoid with these issues, such as 'hiding away when expected to take responsibility' and not answering telephone calls. People with SpLD often create strategies to cope, however these are not always positive coping strategies. Often coping strategies that involve negative actions have been linked to ways of coping with the feelings and concerns described above by dyslexic nurses. Stress and tiredness have also been linked to exacerbating SpLD related difficulties (Illingworth, 2005) which can lead to maladaptive strategies such as overworking, which in turn can lead to further stress and burnout. Experiencing such high levels of stress has been related to individuals developing coping strategies that involve distancing or removing the stress source, as opposed to dealing with the source of stress effectively (Tattersall et al., 1999).

The term 'passing' was used by Goffman (1963) to describe the type of strategies that people use to hide particular difficulties or aspects of themselves that they think might result in them being stigmatised. The responses from the doctors with SpLD in this study indicate that at times they implement certain avoidance coping strategies in the clinical environment to cover some of their difficulties, potentially to avoid behaviours that could lead to them being stigmatised. Over a third of participants claimed that they 'sometimes' avoid certain aspects of their work. Making telephone calls and some practical procedures, completing drug calculations without a calculator, practical procedures or tasks that involve sequencing such as following directions or instructions were examples of tasks avoided by the participants with SpLD. These avoidance strategies could be viewed as a positive coping strategy in that participants are identifying areas of weakness and avoid them to avoid error. In addition to the presence of their SpLD related difficulties leading to doctors being stigmatised, identification of errors may also lead to stigmatisation. Hence doctors with SpLD may wish to avoid their errors being evident to colleagues, and thus will avoid tasks where error potential is higher. However Morris and Turnbull (2006) found that dyslexic nurses avoiding certain aspects of their job could have an impact on patient safety, thus such avoidance could be viewed as a negative coping strategy. It has also been suggested that the actual difficulties caused by SpLD are not the biggest potential reason for why an error may happen but in fact it is the heightened levels of stress and anxiety caused by trying to cover them up (Millward, 2005).

Many participants described trying to avoid completing certain tasks in front of people/their colleagues. Due to difficulties with expressing themselves public speaking, such as giving presentations and speaking in meetings, was a much avoided area. This is supported by Morris and Turnbull (2007) who found that dyslexic nurses reported difficulties with presentations and speaking during ward rounds and handovers. Meetings were found challenging to dyslexic nurses (Illingworth, 2005) with some nursing students preferring to ask other people to complete tasks or even just refusing to complete a task (White, 2007). Other tasks which doctors in this study tried to avoid doing in front of others included: writing, spelling, reading aloud and completing practical tasks. This avoidance of completing certain tasks in front of others could explain why some participants 'strongly agreed' that they sometimes try to hide their SpLD. Trying to hide or avoiding completing certain tasks could suggest that doctors are using impression management (Goffman, 1959), a self presentation technique, to alter their behaviours so that their colleagues will not see their SpLD and thus ensure that their colleague have positive impressions of them.

Disclosure

A person is under no obligation to disclose their SpLD if they do not wish to and there are many reasons why a person may or may not choose to disclose their SpLD. However, not disclosing their SpLD could mean that people do not get the support they are entitled to, and Morris and Turnbull (2007) highlight that by not disclosing people are limiting awareness for others. Those that choose to disclose are often cautious and selective about whom they decide to disclose to (Morris and Turnbull, 2007). Illingworth (2005) explained how being aware of negative attitudes and stigmas that others attached to being dyslexic could decrease the chance of disclosing and increase stress, which could result in exacerbating a doctor's SpLD related difficulties. White (2007) argued that being labelled as having SpLD has a substantial impact upon how an individual perceives themselves, and so by being selective in who they decide to disclose to gives them power and some control of the situation (White, 2007). Reasons for disclosing are often based upon whether the person is likely to gain something positive from it, such as support or assessments (Morris and Turnbull, 2007).

In this study the participants were most likely to disclose their SpLD to their family followed by their friends, although some had never told their family and a fifth had

never told their friends. One participant explained that they were hesitant in telling people due to stereotypes and stigmas associated with SpLD and over a quarter of the participants were concerned that others would judge them for having SpLD. Results also showed that more doctors with SpLD were more likely to know another doctor with SpLD, in comparison to doctors without SpLD. This could suggest that doctors with SpLD are confiding in each other for mutual support, or being selective in who they disclose as a form of impression management. Others have also found that dyslexic nursing students often disclosed their dyslexia on a 'need to know' basis, due to concerns about reactions and associated stigmas, or if they thought their SpLD was going to be a problem (Ridley, 2011; Sanderson-Mann et al., 2012). Those doctors with SpLD were more likely to agree that a doctor with SpLD would have more strengths in the workplace than those doctors without SpLD, however only a quarter of the participants had disclosed their SpLD when they applied for their current job. This could imply that although participants are aware of the strengths of SpLD and they believe they are good at their job, they could be experiencing felt stigma leading to concerns about how others will perceive them, especially someone important like an interviewer for a job.

When it came to potentially telling their colleagues about their SpLD, almost a third of doctors with SpLD were inclined to agree that a doctor with SpLD 'should' tell their colleagues that they have SpLD; however this rose to nearly half of doctors without SpLD who thought doctors should disclose if they have SpLD. Reasons for why the participants thought doctors with SpLD should disclose are unclear, as the majority of doctors without SpLD said that they would not be concerned about working with a doctor who had SpLD. A third of the participants with SpLD thought that members of staff would treat a doctor with SpLD differently in the workplace. This could suggest that the doctors with SpLD are experiencing felt stigmas and not enacted stigmas, as doctors without SpLD expressed that they thought other members of staff would not treat a doctor with SpLD differently and they themselves would not be concerned about working with a doctor with SpLD. Also whilst over half of the doctors with SpLD in this study reported that they do sometimes tell their colleagues at work, nearly half agreed thinking that others would judge them for having SpLD, again suggesting that doctors are experiencing felt stigma. Scambler (1989) explained how felt stigma can become a self fulfilling prophecy as if people feel shame or fear about having a potentially

stigmatising attribute and they conceal this from others, then they will never know if they will experience the enacted stigma that they fear.

One participant with SpLD in this study did describe enacted stigma, talking about the lack of awareness that their colleagues had about SpLD and that they found it 'useless' trying to explain it to clerical or administrative staff as they often just did not understand. This could explain why some doctors with SpLD chose not to disclose, despite maybe thinking that they should. Telling colleagues was difficult for dyslexic nurses and healthcare assistants in a study by Illingworth (2005) and they were often selective in which colleagues they decided to disclose to due to concerns about being judged and fear of misunderstanding. However in this study some described disclosing their SpLD for positive reasons and developing disclosure into a coping strategy, and how by making other team members aware of their difficulties they were able to use input from these colleagues as a way of error checking.

Dean et al. (2002) suggested that pharmacists could be used to help check for medication and prescriptions errors more than currently, and be involved in formal strategies to help reduce prescription errors. The relationship between colleagues and other team members was an important factor in people's evaluations of whether to disclose their SpLD (Morris and Turnbull, 2007). For those that did disclose, they cited reasons of wanting to raise awareness about the traits of dyslexia in the hope of alleviating any potential ridicule in their future (Morris and Turnbull, 2007).

Interestingly, significantly more doctors with SpLD suspected that they currently worked with a doctor who had SpLD, in contrast to those participants without SpLD, which could suggest that doctors with SpLD are more likely to attribute difficulties or errors made by others to SpLD. This notion is supported by Riddick (2000) who explained how when a person is aware of dyslexia and knows the 'signs', they are able to easily identify others with SpLD.

All the doctors were likely to disagree that a doctor with SpLD should tell their patients that they have SpLD and the overall majority of the participants reported that they would never tell a patient that they had SpLD with only 1 participant reporting that they always tell their patients about their SpLD. In answer to a previous question in the questionnaire a participant explained that they use their experience of SpLD as a

positive example for patients and how by being open about their SpLD with others in their working network, they were able to create a strategy to help prevent errors. Nearly a third of participants with SpLD thought that patients would be concerned about being treated by a doctor with SpLD.

Conclusion

The results from Study 1 have proved the hypothesis 'Having a specific learning difficulty will not have an impact on views of doctors regarding functioning as a medical doctor in a clinical setting' wrong. The results from this questionnaire have shown that having SpLD does have some effect on doctors in their work, but through the implementation of strategies to deal with their stress and SpLD-related difficulties they are able to overcome any barriers faced and feel they are coping well. Despite expressing more difficulties in relation to everyday skills, those participants with SpLD rated their clinical performance as equal to doctors without SpLD.

Any task that involved writing was reported as the biggest difficulty experienced by doctors with SpLD, even when rating it in relation to clinical work. Also most doctors described disliking a number of tasks if they were expected to do it in front of others, which could be in part due to the fact that they were more concerned about potential error rate and or issues around disclosing to colleagues and other team members. The results suggest that the doctors try to control the information that is known about their SpLD in an effort to avoid any potential discrimination or negative attitudes; however doctors without SpLD did not report having concerns about working with those with SpLD.

The results from this study helped to create the interview schedule used in the next chapter of this thesis (Study 2). The purpose of the interviews was to elaborate on some of the findings from the questionnaire, with the aim of providing a detailed and complete account of how doctors with SpLD function in the workplace.

CHAPTER 7
STUDY 2 – INTERVIEWS

This chapter describes the process and results of semi-structured telephone interviews conducted with medical doctors throughout the UK who have either been diagnosed with specific learning difficulties (SpLD) or suspect that they have SpLD (Study 2). These semi-structured interviews have been conducted to expand on findings from doctors with SpLD in Study 1 by further exploring the experiences of doctors with SpLD in the workplace.

Research aim

The aim of this study was to elaborate on the data gained from the Study 1 questionnaire and to develop a deeper understanding of what it is like to be a qualified doctor with SpLD in employment in the UK.

Research Question

The research question for Study 2 was as follows:

> 'How are doctors with SpLD coping in the clinical workplace and what strategies, if any, are they using and how does this impact on their working lives?'

Methods

This is the second research study in a mixed methods project involving a quantitative questionnaire with all doctors (Study 1) and qualitative semi-structured interviews with medical doctors who have either been diagnosed with SpLD or suspect that they have SpLD (Study 2).

Semi-structured interviews

A semi-structured telephone interview format was used to conduct the interviews. The rationale for using this methodology was detailed in the Methods chapter (Chapter 4). The interview schedule contained 13 questions originally distributed into 4 themes (appendix 15). Table 24 contains details of the 4 themes and examples of the types of questions related to those themes that formed the interview schedule.

During the time that the interviews were being conducted a new question was added to the Strategies/Support section on the schedule on the basis of an interesting response made by participant 5, relating to what support doctors with SpLD would find useful. For the remaining 7 interviews, the interview schedule contained a total of 14 questions.

Themes from Study 1 and literature reviews	Example questions from interview schedule
Overall Impacts	How does having a Specific Learning Difficulty, such as dyslexia, impacts on your work as a doctor?
	What do you believe are the advantages and/or weaknesses of having SpLD in the workplace?
Support/Strategies	Could you describe any formal or informal support that you use in the workplace
Disclosure	Have you disclosed your disability and what made you decide on this?
	How do you feel about other people knowing that you have dyslexia/a learning difficulty?
Career	Did having SpLD have any affects on your career choice and if so how?
After these key areas were covered, participants were asked...	Is there anything else you would like to comment on or add that you think may be pertinent to this study?

Table 24: Themes for interview schedule

Participants

The participants for this study were selected using purposive sampling, which is where participants are selected due to processing certain characteristics or traits that are most appropriate for the study. Therefore for this study, doctors were targeted via the recruitment strategy for Study 1 (as outlined in Chapter 6) and then participants were purposively selected if they met the inclusion criteria.

Inclusion criteria: The inclusion criteria for the participants was anyone registered to practice as a doctor with the General Medical Council (GMC), irrelevant of gender, age and ethnic background, and who has been employed as such for a period of 6 months or more in order to ensure that the person has adequate experience of working independently in a medical setting to base their answers on, and who has a diagnosed or suspected SpLD.

Exclusion criteria: The exclusion criteria for the participants was anyone not registered to practice as a doctor with the GMC and who has not been employed as such for a period of 6 months and who has not got a diagnosed or suspected SpLD.

Recruitment

Recruitment for this study was completed electronically in combination with questionnaire for Study 1. Details of Study 2 were sent out with the recruitment information for the Study 1 questionnaire through the various methods detailed in Chapter 6 (See Appendices 10,12,13). Also at the end of the Study 1 electronic questionnaire those participants who answered "yes" to having SpLD were asked if they would also like to take part in an interview. If they were interested, there was a separate hyperlink provided which took them through to another completely separate short form where they could enter their contact details for receiving more information about the interviews. This 'contact details' section was not connected to the original questionnaire and could not be traced back to their responses to the initial questionnaire, ensuring their data remained anonymous.

It was hoped that ten participants would be recruited or enough participants until data saturation (the point where there is no new data coming from the interviews) had

occurred. For the interviews, previous research supports this sample size with many studies quoting sample number of between 8 – 22 (Illingworth, 2005; Morris and Turnbull, 2006; Morris and Turnbull, 2007; White, 2007; Crouch 2010). It was planned that in the event that there was a low response rate of participants (n=<10), a larger emphasis would be focused on recruiting doctors in the Norfolk region and therefore posters and flyers would be placed around the local hospitals in an attempt to raise awareness about the study and increase the participation rate. Fortunately a sufficient number of participants came forward so this extra recruitment drive was not required.

Procedure

Once the interview participants were identified, a participant information sheet (Appendix 16) was sent out to them and then if they still wished to proceed, arrangements for their interview were made.

As with the Pilot A interviews, these telephone interviews were recorded on a digital voice recorder. For the Study 2 telephone interviews there was also a piece of specialised equipment that connected the telephone to the voice recorder enabling both sides of the interview to be picked up clearly.

Before the interview commenced the interviewer followed an interview pro-forma (Appendix 17) which contained a checklist of items to do before the interview started such as outlining the study, ensuring confidentiality and gaining consent to record the interview. The participants were also asked for their age, gender, medical specialty and SpLD diagnosis. They were informed when the recorder was being switched on and off. As part of completing this pro-forma, the participants were asked outright if they gave their verbal consent to participant in the interviews.

It was hoped that the interviews would last approximately 40 minutes. When actually conducting the interviews the average time taken to conduct the interview section (not including the initial introduction and going through the interview pro-forma sheet) was 37 minutes, which was a suitable time to obtain the quality and rich data required.

Throughout the interviews the researcher tried to keep the tone friendly, as well as professional so as not to undermine the integrity of the study but to keep participants at

ease to respond and not feel like they were being examined. During the interviews the use of encouraging and positive probes was used when asking participants to clarify or elaborate on a response.

At the end of the interviews the participants were asked if there was anything else they would like to add or discuss or if they had other questions concerning the study. Gillhan (2000) points out that an often neglected point about telephone interviewing is social closure. Meaning, that putting down the telephone after the interview could be viewed as rather abrupt and impersonal, therefore a conscious effort should be made to thank the participant for their time and reassure them about confidentiality and discuss plans for the results of the interview and the project overall ensuring that the participant is left feeling happy and that their participation was truly appreciated. Thus, on the completion of the interview, the participants were thanked for their participation, reassured once more about confidentiality and asked if they like to be informed about the results of the overall project when it was completed.

Confidentiality

All of the data collected throughout the study (no names, places of work or other potentially identifying data were collected) were anonymised where necessary, to ensure that participants' personal details were kept confidential. Participants were assigned numbers to ensure anonymity during the transcription process.

All of the information obtained during this study was handled in accordance with the Data Protection Act of 1998. Data obtained from all the studies was kept on a password-protected computer and was only seen by the lead researcher and members of the supervisory team for analysis. At the end of the research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of.

Ethical Considerations

Ethical consent was gained from the University of East Anglia's (UEA) Faculty of Health Research Ethics Committee during the same application as Study 1 (as described in Chapter 6).

There was a possibility that participants may have become upset or distressed during the interview, as their SpLD may be a sensitive subject for them that they have not discussed before. Had this occurred during the interview it was intended that the participant be referred to the invitation email and Participant Information sheet which provided information regarding dyslexia organizations and services which they could contact or refer to for further information, advice or support. However no participants got upset during the interviews, so the researcher did not need to refer them to this directly.

Data analysis

The interview recordings were originally transcribed into Microsoft Word and then imported into NVivo version 10 for analysis to be conducted. The type of data gathered from these interviews varied according to the question being answered. The majority of the data were descriptive, with doctors describing the physical implications of having SpLD such as using coping strategies and the people that they have disclosed to. The interviews were analysed using a thematic analysis method by the lead researcher and also by a member of the supervisory team to check that emerging themes and selected quotes were appropriate and accurately reflected the data to ensure reliability and validity.

Within medical education, thematic analysis is the most frequently used qualitative analysis approach (Lingard & Kennedy, 2006). This type of analysis method is a search for themes that emerge as being important to the description of the phenomenon (Daly et al., 1997).The process involves carefully reading through data transcripts to identify any common instances, key phrases, topics or concepts, and creating codes. The term 'codes' is used to identify any characteristics of the data that is of potential importance or interest for analysis, and helps to organise the raw data into meaningful categories. These codes progressively build up into emerging themes. A theme is classed as pieces of potentially significant data in relation to the research question and something that also holds meaning or denotes a pattern within the data (Braun and Clark, 2006). Thematic analysis 'provides a flexible and useful research tool which can potentially provide rich and detailed, yet complex account of data' (Braun and Clark, 2006, p78). Other forms of qualitative analysis were considered, such as Interpretive Phenomenological Analysis (IPA). IPA's is a phenomenological approach that aims to

discover the details of how individuals understand and make sense of their own personal and social world and experiences. However as the majority of the data required and obtained from this study were more descriptive, thematic analysis was deemed the best approach for analysing the data. Another reason for selecting thematic analysis was based on the fact that many of the previous qualitative studies in similar fields to this study have also used thematic analysis or a variation of coding their data into themes (Illingworth, 2005; Morris and Turnbull, 2006 & 2007; White, 2007; Murphy, 2010; Tee et al., 2009; Kong, 2012). This indicates that it was a suitable and useful analysis method in this area, and the findings obtained in this study would be comparable to such previous research.

The transcripts were analysed based on a framework by Braun and Clark (2006), as outlined in table 26 and discussed in detail further below. An inductive approach was taken, meaning that the analysis was data driven and the themes that emerged were not forced to fit into a pre-existing framework or influenced by the researcher's analytical presupposition. The process of this analysis and the resulting themes are discussed below. During this process 'reflective' notes were taken about the interview process and data analysis (see Appendix 18).

All of the information that was taken within the context of the interviews was deemed valid content. When analysing the data, the lead researcher coded the transcripts first and then gave this to the secondary research supervisor who read through all the transcripts and checked the coding.

Throughout the results section, direct quotes have been taken from the interviews to support the findings and to ensure the correct interpretation of the data.

Interviewed participants

Overall 12 interviews were conducted with medical doctors throughout the UK. A minimum number of 10 interviews was set. Originally 21 people either left their contact details after completing the questionnaire or contacted the lead researcher directly about taking part in an interview. All 21 potential participants were sent the invitation email, containing more information about the study; fifteen people subsequently expressed a wish to take part in the interview. However after further investigation to

check for their suitability, 2 were not eligible to take part (one had a physical disability and not SpLD and the other did not live or work in the UK) and another participant decided that they did not want to take part due to concerns over disclosing their SpLD, leaving 12 participants to interview.

	Gender	Graduated from medical school	Specialty	SpLD	When Diagnosed
P1	Female	1979	Paediatrician	Suspected Dyslexia	-
P2	Female	1986	General Practice	Dyslexia	'A' levels
P3	Female	2001	Anaesthetics	Dyslexia	Medical School
P4*	Female	1997	General Practice	Suspected Dyslexia	-
P5	Male	2007	Obstetrics and Gynaecology	Dyslexia and Dyspraxia	School
P6	Female	2005	General Practice	Dyslexia and Dyscalculia	Medical school
P7	Female	2011	F1 – currently Obstetrics and Gynaecology	Dyslexia	Medical School
P8	Male	2008	Pharmaceutical medicine	Dyslexia	Medical School
P9	Female	2008	F1 – currently on a break	Dyspraxia	4th Year Medical school
P10	Male	2000	Acute Medicine and General Practice	Dyslexia	School
P11	Female	2011	F1 – currently General Medicine	Dyslexia	School
P12	Female	2001	Palliative Medicine	Dyslexia	School

Table 25: Details of Interview Participants

Key:*=Successful interview however recording failed.

Between February and July 2012 a total of 12 interviews were conducted (see Table 25). In total there were 10 female and 2 male doctors interviewed. The sample of participants contained a varied range of the demographic characteristics measured,

including year of graduation (1979-2012), medical school and specialty. General Practice was the most common specialty (n=3) for interview participants.

Ten of the participants had a formal diagnosis of SpLD, with dyslexia being the most common either alone or in combination with another SPLD, and one participant had been diagnosed with dyspraxia. Two other participants strongly suspected that they had dyslexia and had family members who had been diagnosed with dyslexia.

The interview with participant 4 (see * in Table 25) went well however unfortunately, there was a malfunction with the digital voice recorder and the interview was not recorded. As adequate notes could not be made after the interview had been completed, this participant was not included in the analysis stage. This meant that a total of 11 participants were included in the final analysis.

Braun and Clarks (2006) framework for thematic analysis

The next section of the chapter discusses the six stage stages of the thematic analysis process (see Table 26). The first five stages involve the methods used when exploring the initial data and the process of how the data from all the interview transcripts were developed in the final resulting themes. The final themes are discussed in stage 6 as the overall results of the Study 2 interviews.

Phases of Thematic Analysis	Action
Phase 1) Getting to know the data	Transcribe data, noting initial ideas and becoming familiar with the transcripts.
Phase 2) Generating initial codes	Begin to examine the data in order to create initial codes for the data. Coding interesting characteristic/concepts/key phrases of the data in a systematic way, collecting data relevant to each code.
Phase 3) Searching for themes	Collecting codes into potential themes, gathering all data relevant to each theme.
Phase 4) Reviewing themes	Checking to ensure that themes work in relation to the coded extracts and the entire data set generating a thematic map of analysis.
Phase 5) Defining and naming themes	Ongoing analysis to refine specifics of each theme and the overall story the analysis tells, generating clear definitions and names of each theme.
Phase 6) Producing the report	Producing a report of analysis, relating back to research question, literature and final analysis of selected extracts.

Table 26: Braun and Clark (2006) Phases of Thematic Analysis

Phase 1: Getting to know the data

During the transcription phase, ideas that were noted from the transcripts were as follows:

1) Participants had experienced various difficulties with spelling; these spelling difficulties and reading were the common difficulties discussed.

2) Participants commented on having various strengths potentially due to having SpLD, such as communication.

3) The way in which people felt about having SpLD varied greatly between participants.

4) Participants felt that having SpLD had affected them in their work in some way or another.

5) Participants had developed some form of coping/compensatory strategies themselves due to their SpLD.

6) Participants had used the term 'excuse' or 'stupid' in their interview.

7) Lifestyle reasons were popular as influencing career choice.

8) Participants sometimes appeared to be 'venting' or gave the impression that there was something that they particularly wanted to express.

9) Extra time was a common compensation during exams.

10) Participants seemed to generally accept that they had difficulties but just needed to 'get on with it' or find a way round it.

11) For some participants this seemed to be the first time that they had been able to discuss and talk about their SpLD or even the first time that they had acknowledged its effects.

12) Should be noted that these participants often refer to a 'difference' as opposed to difficulty.

It is important to note that those with SpLD can often experience difficulties when trying to express their thoughts verbally (Bartlett & Moody, 2010). At times the participants experienced some difficulties in expressing themselves verbally, for example they started one train of though and quickly changed to another, leading to short sentences that did not make sense. Also, throughout most of the interviews the participants used confirmation phrases such as 'does that make sense' or 'do you know what I mean' or 'you know?' and often went on to clarify or reiterate if they felt it was required. This indicates that they seemed to be aware that they may not be expressing themselves accurately and that they wanted to ensure that they were getting their point or opinion across correctly.

Throughout each interview the style of the interview often progressed throughout the transcripts, starting off more question-based and then slowly progressing into a much more conversational style, although still sticking to the interview agenda, as both the interviewee and the interviewer became more confident and comfortable in the interview. For some participants this was the first time that had been able to discuss

their SpLD and the first time that they had reflected on their experiences and the effects of having SpLD, and for some it appeared to provide a cathartic-like experience.

Phase 2: Generating initial codes

The form of coding used in this analysis is 'data-driven', meaning that the themes were determined by the data as opposed to being 'theory-driven' whereby the data is coded in accordance to a specific question. For this phase the dataset was systematically analysed with items of interest being noted along with their potential for repetition in the dataset (themes). For this phase it was recommended that as many potential themes are coded to ensure that the context of the data extracted in to the codes is kept. After the first phase of coding all of the dataset 130 codes were created. Some of these codes had extracts from all 11 transcripts whereas there were some that only contained extracts from 1 transcript, indicating that this could potentially be a contradicting code or that it may fit better into another code.

Phase 3: Searching for themes

Once the entire dataset had been coded into separate codes, the third stage of analysis took place. This was where all of the data that has been coded is collected together and examined from a wider perspective to see how to combine and categorise similar codes into potentially broader themes and subthemes.

In total there were 130 initial codes which were then examined and similar or related codes were grouped together in create 30 preliminary themes and 21 subthemes (see Appendix 19). One of the benefits in using software, such as NVivo as was used in this study, to analyse the data in this way is that it there are various functions that one can use to organise and view the data and codes, and to extract the relevant data from each transcript for a particular code more easily. During this process all the data is still considered and none of the codes are deleted, even if they appear to not be related to any of the newly formed themes. This part of the analysis process is about collating everything within the data ensuring that anything noteworthy or potentially significant is included.

Phase 4: Reviewing themes

After the data transcripts were coded and a set of 30 preliminary themes had been developed, the next stage in the analysis process was to develop and refine these themes to ensure that they accurately reflected the interview data. Each of the codes in each theme were re-read to ensure that they complied with the theme in which they were placed. In some case the codes were moved to more appropriate themes, or they became a subtheme or in some cases they were excluded altogether as there was not enough data to support them. These higher referenced codes (ones with more quotes from the different transcripts) were then re-examined for potential codes within them and also the lower referenced codes (ones with a lower number of quotes from the transcripts) were checked to see if they were correctly coded. The quality and quantity of the data under each code was also checked by using the two judging criteria from Patton (2002) internal homogeneity and external heterogeneity. The first of these, internal homogeneity, refers to the level that the data within each theme is similar and related in a meaningful and consequential way. While the second, external heterogeneity, makes sure that each separate theme is clear and not overlapping with another and that all the themes together create an accurate reflection of the dataset as a whole.

A second member of the research team also reviewed the codes for the data during this phase, to aid accuracy and act as a form of analytical triangulation. A review meeting was held where the coding of the data was discussed, and discrepancies in the coding and classifications of themes were explored. There were only 3 occasions where there was a discrepancy with the initial coding, however these were simple errors and the information had been put into the wrong code by mistake. The final refinement of the themes and subthemes were agreed upon during this discussion (See Figure 4). This discussion also helped to increase the validity and inter-researcher reliability of the results (Onwuegbuzie and Daniel, 2003).
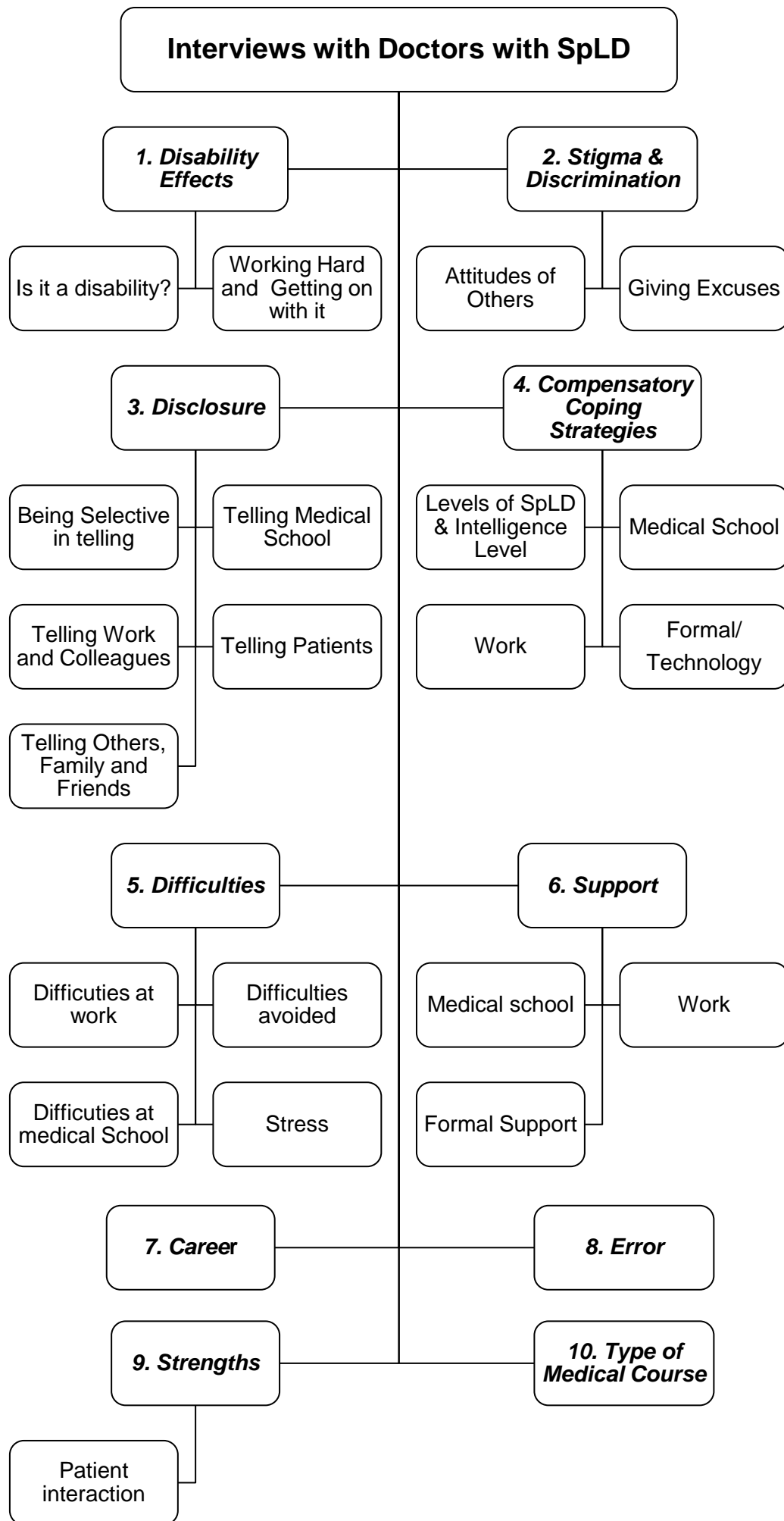
Interviews with Doctors with SpLD

1. Disability Effects

Is it a disability?

Working Hard and Getting on with it

2. Stigma & Discrimination

Attitudes of Others

Giving Excuses

3. Disclosure

Being Selective in telling

Telling Medical School

Telling Work and Colleagues

Telling Patients

Telling Others, Family and Friends

4. Compensatory Coping Strategies

Levels of SpLD & Intelligence Level

Medical School

Work

Formal/ Technology

5. Difficulties

Difficuties at work

Difficulties avoided

Difficuties at medical School

Stress

6. Support

Medical school

Work

Formal Support

7. Career

8. Error

9. Strengths

10. Type of Medical Course

Patient interaction

Figure 4: Thematic Map

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Phase 5: Defining and naming themes

In total there were 10 main themes identified in the data with each of those containing up to 5 subthemes. In this stage of analysis the themes were individually defined and refined to identify the fundamental nature of each theme.

1. **Disability Effects** – This theme incorporates how participants felt about being diagnosed with SpLD, the role confidence plays in this. Participants also seemed unsure about what issues were the result of them having SpLD and what was down to personality. This theme contains 2 subthemes.

    A. Is it a disability?
    B. Working hard and getting on with it

2. **Stigma and Discrimination** – Some participants reported fear about being discriminated against in their work and described being embarrassed due to the attitudes of others. This theme has 2 subthemes:

    A. Attitudes of others
    B. Giving excuses

3. **Disclosure** - This theme relates to the issues that participants had surrounding disclosure. It is split into 5 subthemes regarding the reasons for and against disclosing to particular people or organisations.

    A. Being selective in telling
    B. Telling medical school
    C. Telling work/colleagues
    D. Telling patients
    E. Telling others, family & friends

4. **Difficulties experienced** – In this theme participants described the types of difficulties that they have experienced in the various situations and the impact of these difficulties. This theme contains 4 subthemes.

A. Difficulties in medical school

B. Difficulties in work

C. Tasks avoided

D. Stress

5. **Error** – In this theme participants described being aware and cautious of their potential to commit a mistake and also described strategies put in place to reduce error potential.

6. **Coping strategies** – For this theme participants described the various coping strategies that they have developed and what has influence their development. This theme contains 4 subthemes.

A. Level of SpLD and IQ

B. Medical school

C. Work

D. Technology

7. **Support** – In this theme participants discussed various type of support that they have received throughout the stages of their life and the success and failure of these support mechanisms in their settings. This theme contains 3 subthemes.

A. Support in medical school

B. Support in work

C. Formal support

8. **Strengths experienced** – This theme described the different strengths of having SpLD that participants' identified, with most of them relating to the subtheme of 'Patients interaction'.

A. Patient interaction

9. **Career** – In this theme, participants discussed various aspects of career including what influenced them in selecting their specialty and which specialties would perhaps suit or not suit a doctor with SpLD.

10. Medical Course – This theme relates to the style and type of medical course the participants had attended and the advantages and disadvantages of these.

Phase 6: Producing the report

After completing all of the stages of thematic analysis described above, a report for each of the 10 main themes was completed in detail using quotations from the original interview transcripts to support themes. The detailing of each theme is below. The participant number (given in Table 25) is in brackets after each quote.

1. Disability effects

For most of the participants this was one of the first opportunities that they had had to think about and reflect on how having SpLD may have impacted upon their lives.

> "You just don't really think about these things...until now when someone asks." (P3)

All of the participants seemed to be fairly comfortable with their diagnosis. One explained that they would have never suspected that they had dyslexia at the time, it was only with hindsight that they realised this diagnosis accounted for many of the difficulties they had been having. Through completing the interviews participants began to look at how they work and appeared to become more aware of some of the differences between themselves and their colleagues. Many participants seemed to be unsure though if these differences were due to them having SpLD or due to personality differences, quirks or even sometimes arrogance.

> "I'm not sure whether that's to do with having SpLD or whether it's just a personality thing?" (P1)

> "I don't know how much of that is my dyslexia or just because I want to do everything perfectly" (P6)

This could demonstrate a lack of awareness and understanding of SpLD. One doctor described being in denial about some of the weaknesses they were experiencing being the result of having dyslexia, as they explained that they did not have to be dyslexic to make such mistakes. This participant did go on to explain that they understand that it is the frequencies of mistakes or difficulties that made them feel that they do have dyslexia. Other participants also explained that they were unsure about whether their difficulties or coping strategies are caused by having SpLD or if everyone (irrelevant of disabilities) is affected in the same way or do the same things.

> "it's hard to know if you have to do something because you have dyslexia or if that's what everyone's has to do as well" (P6)

Confidence had an impact on the participants' views of the effects of the disability and having confidence appeared to positively influence coping and relationships with their colleagues. Gaining the confidence to be open about their SpLD and being comfortable to face some of their difficulties in front of people took time and seemed to happen when the doctors were in supportive teams and working environments.

> "now I'm quite comfortable with the fact that I am rubbish at something (laughs)" (P1)

> "they just understand that I need to jotted notes, but they said that they know quite a few GPs who do that, so that's alright, but it has taken me quite a while to build my confidence up" (P6)

> "most people will recognise that I'm not spelling something right or I look at them and say 'I'm really sorry how do you do this again or could you tell me what that was again' and most people are fine with it, they don't look at you twice or anything, so it's just having the confidence to do that." (P7)

A. Is it a disability?

Participants were also divided in their consideration of whether they classed themselves to have a disability due to having SpLD. Only one participant actually fully considered it a disability, whereas most of the remaining participants were very unsure.

One participant explained that they thought they should consider it as a disability as it affects their professional life, however they know no different as they have always had dyslexia.

Some doctors did not consider their SpLD to be a disability. Some did not regard their dyslexia as a disability as they had strategies in place to prevent any negative effects and therefore it did not impact upon their everyday or working life. While others explained that they felt that the impact of having perhaps more physical or mental difficulties had a much more significant impact on people's lives and therefore warranted the classification of 'disability' unlike having SpLD, especially when they have been successful in their careers and education.

> "I mean it's hardly a disability, you just have to be aware of it and figure out a way that works for you" (P1)

> "I don't like to call it a disability because I sort of look at it as err....I mean obviously there are varying different levels of disability isn't there, I mean you look at people with err....learning disabilities or people who have both visual and non visual disabilities type things and you sort of compare, you know I've been quite lucky, I'm quite qualified and you know, I'm sort of doing alright...I don't know" (P8)

One explained that they thought it would be disadvantaging them especially while they were still on rotations and surrounded by a very competitive environment. This participant was concerned that declaring that they had a disability would make them appear weaker in front of their colleagues/competition. Whereas another doctor regarded their SpLD as a disability but also as an advantage due to the number of strengths that they felt it gave them.

Others appeared not to be very concerned about whether it was or was not a disability, they were more concerned over the definition of a disability and believed that other people would not perceive their SpLD as a disability.

> "I don't think that I would have been perturbed one way or the other, to be honest now whenever I fill in a form and it asks if I have a disability I never quite

know what to say because yes I have dyslexia, I've got strategies to live with it and I have no doubt that it does impinge on my professional life, but I don't think that's what other people would identify as a disability so I don't put it down as such" (P10)

"I consider myself less able because of it, but in the definition that most people see disability I don't." (P12)

Confusion surrounding whether or not having SpLD was considered a disability was only an issue when completing equal opportunity type forms. Despite some participants not viewing their SpLD as a disability, when discussing these types of forms they often commented that they would then tick the disability box. Participants explained that it often depends on the wording of the question and the details given about what the form includes as a disability.

"....basically because I don't know about whether it's a disability, I think on about half the forms I fill in I say yes I have dyslexia and on the other half I don't, just because I'm not sure and because you never get any feedback from the form, you're never quite sure if it's what people want or they're just collecting data so they're not interested in actually doing anything with it, they just want to know" (P10)

"it depends on how they've worded that statement, if it's something that incorporates dyslexia, then I will say so, but I will usually say that I have dyslexia but that I don't need any assistance within that, but it depends on slightly on they've worded the occupational health form, ... I think sometimes I've had said yes and other times I've said no" (P12)

B. Working hard and 'getting on with it'

Many of the participants showed a determination to succeed in their responses and many commented on how despite any difficulties that they may experience, they are prepared to work hard to achieve whatever they set out to.

"I just had to work hard and things took a lot longer and I had to use my specific

ways...worked very hard in medicine to make sure that it doesn't impact upon my clinical care" (P2)

"I mean at the end of day you've got to acquire a certain amount of skills and knowledge and so and within the same timeframe as everybody else to do it so... and in your working life you still have to function at the same level so I've always thought well you just got to get on with it basically...I've survived so far so you just crack on with it" (P3)

Some of the participants were very optimistic in their opinions about their SpLD and how they had overcome any difficulties to succeed.

"I suppose my feelings on dyslexia has always been that there are solutions, there are work arounds that you can put in place to achieve anything" (P2)

"I can see it more as an equally cursed and an equally blessed thing, so I almost sort of regard the disability as an advantage because I think the things it gives me outweigh or at least even out the disadvantages" (P12)

2. Stigma and discrimination

Unfortunately stigmas attached to having SpLD and fears of discrimination were reported by many of the participants. One participant explained that when they were applying to medical school 25 years ago they felt that if they had mentioned their dyslexia they would not have been given a place. However those who had graduated more recently also expressed similar concerns. One participant described feeling that if they sought formal support they would be actively discriminated against and, that due to the competitive environment in which they work, they were worried that their colleagues would make assumptions and they would be discriminated against.

"Because it is so competitive in the NHS these days, and I am in a very competitive specialty, so I think it would be perceived as a weakness and all so because it hasn't really been clarified by the GMC about competencies, it is very easy for people to make assumptions based on your disability about your competencies, so I just don't think that I would be treated fairly, and I probably

would be actively discriminated against, with my career" (P5)

Due to such stigmas and negative connotations associated with having SpLD some of the participants reported that they feel ashamed and embarrassed because of having SpLD. Some commented that they often feel stupid and like idiots when they make an error or from people's reactions to it.

> "I can function at a high level but it is quite embarrassing when you can't spell, remember people's names and spell simple non-medical words" (P3)

Participants were concerned about other people's negative preconceptions of SpLD and how they would react, especially when applying for new jobs. The participants also seemed to fear being labelled and treating differently and firmly believed that others would only view SpLD as negative.

> "I don't like to be labelled and I don't want people treating me differently .... preconceptions of people with dyslexia, oh you know 'oh it's an excuse' and ....'right ok we've got this guy who's coming who's got this, which mean because of equal opportunities and all that type of stuff, we're going to have to spend load on him, and so maybe we shouldn't take him'.......so yeah there was a concern" (P8)

This was not the case for all doctors though with one feeling that it would not make a difference to how they would be treated as long as they could effectively convey the implications of having SpLD.

> "I presume they'd just treat me the same ....it's trying to sort of persuade people that yes you've got a name to attach to the things that you struggle with but that doesn't mean that it's going to be any more difficult to get to the place that you want, it just means that you have to figure out different or better strategies to actually achieve your goal" (P10)

A. Attitudes of others

The term 'stupid' appeared in a number of the interviews. Two of the participants

explained that when they were younger, before they were diagnosed, the difficulties they experienced at school were put down to them being 'stupid'. These negative attitudes from others could have had an impact on the participants. This could also explain why some of the other participants explained that they have been put off telling others about the SpLD, because they thought that others would equate this to them just being stupid or illiterate.

> "It was always put down to the fact that I was a bit thick and stupid really I suppose and I think that sort of attitude pervaded really" (P9)

> "Even my parents used to say when I used to not do well at school, they said to me 'you're just stupid', everybody used to call me stupid" (P8)

> "They think you're saying that that you're actually stupid or illiterate [when you say you have dyslexia] so you kind of get that attitude" (P6)

Some of the participants had had quite negative experiences when it came to telling tutors, supervisors and even members of their family. One participant explained how one of their supervisors told them that dyslexia does not exist and accused them of just wanted special compensations. They explained how as a result of this they are now very cautious about how they tell.

> "I mean one of my supervisors who I won't name, actually said to me 'come on, it doesn't exist, it's a load of old codswallop, you know it's just...you know if you've done it to get extra time on your exams then good for you' I don't know I was a bit annoyed at this person but like you know I thought 'I am telling you something that is quite personal to me because I am in a job where involves a hell of a lot of email, reading and writing and it's effecting me' and that's the kind of comment I got. So yeah...people in my current...I mean I have to admit, I've gone back into my shell and I just do it on my own now really" (P8)

The stereotype of having SpLD would appear to not be consistent with the skills required to be a doctor as some participants reported that they often get told, 'you're a doctor you can't be dyslexic'. Some participants explained that when they had told

some people that they were dyslexic, those people were often surprised and in disbelief frequently stating that they cannot have dyslexia because they are so intelligent.

> "Well most people are quite surprised because most people just go 'but you seem so intelligent' or something along those lines or 'but you're a doctor you can't be dyslexic'" (P12)

B. Giving excuses

The participants seemed conscious that they did not want other people to think that they were using the fact that they had dyslexia as an excuse to avoid certain tasks or work. One commented on how there were aware that it was thought of as a 'middle-class excuse' for children who were not doing very well at school. One participant even commented that they too thought dyslexia was used as an excuse to avoid tasks until they were actually diagnosed and they became aware of what exactly it was.

> "I suppose people would say it is almost an excuse to not being able to achieve what you should be able to achieve, so I think that 25 years ago people would just say 'oh what an excuse, you've got a learning disability'" (P2)

> "It depends on the colleagues, but you get something along those lines of the sides of sceptical 'but your parents were middle class therefore you were labelled and you're probably just a bit thick', kind of look but that could be me just being a bit paranoid" (P12)

> "I think it was principally because dyspraxia is seen as what it used to be seen as 'oh you're a clumsy child'" (p9)

3. Disclosure

Overall there were many factors that came into consideration when a person was deciding on whom to disclose their SpLD and many reasons for and against disclosing. Some of the contents of this theme also link with other themes found in this analysis. For example the stigma and fear of discrimination (theme 2) often turned people

against disclosing and also people were unsure of whether it was classed as a disability (theme 1) and something therefore that they should disclose. As discussed in the 'Disability' theme, participants were often unsure about whether SpLD were considered a disability and that, when filling out forms, they would often decide whether to disclose or not based upon the wording of the question. Others also explained that they did not view their SpLD as a disability and subsequently, they do not have anything to disclose.

A. Being selective in telling

Most of the doctors in this study seemed to have put some thought and consideration into who they chose to disclose to. But others did not seem so concerned, due to confidence in their abilities and themselves. Many of the participants reported disclosing their SpLD when they applied for their current job with one explaining that they approached disclosing their dyslexia from a very positive angle and almost used it as a selling point.

The competitive environment in which many doctors work seemed to have been a factor in limiting who participants selected to disclose to. Some participants seemed to think that having SpLD made them weaker or at least appear weaker due to negative stigmas and stereotypes perceived from others. Additionally, when involved with such a competitive world, they did not want to give their colleagues a chance of an advantage over them, even when it came to sharing coping strategies. Participants explained it was about making good impressions to senior members of staff and trying to prove that they are the best at what they do, without the need of additional support.

> "You're always breaking new relationship ground with your colleagues, it's also very competitive and if you can score points against your colleagues, so there isn't a great sense of team work in a ever drifting competitive team really but there really isn't very much stability in the first 5 or 6 years of a doctors training because they're on the move and they're always trying to make good impressions on their colleagues and the hierarchy" (P9)

> "Some specialties are very much based on one-upmanship and me having to prove that I'm better than you to get on" (P10)

One participant went on to explain how they would not disclose their disability currently, but would when they are a consultant or a professor. At that point they would feel like they have proved their ability, perhaps the competition would be over and as such they would have no issues with disclosing.

B. Telling medical schools

When it came to attending medical school four of the participants who had a diagnosis of dyslexia at the time, did not declare it on the application. Only one participant did disclose their SpLD on applying.

> "Well I didn't bother telling my medical school, you've kind of are...you know...I survived so far so you just crack on with it" (P3)

In relation to telling their fellow students that they had dyslexia the participants explained that they often had no option but to explain, as the other students could see that they were being giving extra time or that they were completing their exams in a different room to them. Therefore it was no longer hidden.

> "Obviously when it came to the exam time, because I was in a separate room, it became obvious that I was dyslexic" (P8)

> "I didn't make a massive point of telling everyone on my programme initially but it did come out as people were like 'why do you have extra time' so I had to tell them" (P6)

Once again people's reaction when a doctor discloses their SpLD seemed to be inconsistent and depended upon the individual types of people involved. One doctor explained that when they were training they told all their supervisors; however each time they went through the same negative process, where the supervisors seemed to panic about how they would pass the course and questioned their diagnosis. They explained that once the doctors got to know them and their abilities they would finally acknowledge that they had SpLD. In contrast another doctor explained a more positive experience of how they always tell their consultants that they have dyslexia and explain

how it affects them. They explained how their previous team was very accepting and that they now feel confident in telling their future colleagues.

C. Telling work/colleagues

Three of the participants expressed that they would not disclose their SpLD to their colleagues because they felt that they are perfectly capable of managing their SpLD and performing their work duties. When asked if they had disclosed their SpLD to colleagues one of these participants responded with:

"No no and I wouldn't probably.......I think I would be too ashamed" (P2)

Some participants were concerned about how their colleagues would react, describing feelings of shame and embarrassment at having SpLD, and another explained how sometimes doctors are not the most sympathetic or supportive towards their colleagues when in such a competitive environment.

"You've still got to treat your patient and get on with things you know, so what difference is it [telling their colleagues] really going to make, you know it is something that I deal with that they can't really change" (P3)

"Medics are very difficult; they can be very sympathetic to their patients but very unsympathetic to their colleagues and competitors" (P5)

One doctor explained that they are careful about the team members they disclose to as sometimes telling staff like nurses and secretaries can result in those staff treating the doctor like their child. Or the staff members do not understand the SpLD and believe that the doctor is saying that they are illiterate, which is met by negative comments of disbelief.

"I have told supervisors but you have to be careful who you tell particularly with people like nurses and secretaries, it can get quite a bad response and they tend to think why are you telling or they start treating you like their teenage daughter or......they think you're saying that that you're actually stupid or illiterate.......you get 'how can you have dyslexia, my kids got dyslexia and

they've been told they're never do anything and it's like well......so you get a mixed reaction" (P6)

Negative experiences of disclosing their SpLD were also described by 2 other participants who found that people reacted with very negative comments and concerns over their ability to perform their job. One participate explained that such experiences have made them very cautious about who they disclose to now. Another participant described the experiences of declaring their SpLD as 'outing themselves' but that they wanted people to know as they had dyspraxia to explain some of their co-ordination difficulties.

Some participants explained that they did not mind who knew due to their position of just being made a consultant. Another participant also commented 'they would obviously declare it when they were a consultant'. This could be due to the fact that they have proved themselves and are now confident in their abilities.

> "I'm usually quite open about...I think I've got to the point in life where I am reasonably content with the person I am [they just made consultant]. It's not something I hide but if it comes up in an appropriate conversation it will bring it up" (P12)

D. Telling patients

Four of the participants reported that if it was appropriate then they would tell their patients that they had SpLD. Other participants explained that they have disclosed when they are dealing with concerned patients who have children who have been diagnosed, as a way of helping them understand that you can have SpLD and achieve academically.

> "Probably if I did get to know patients really well and I was somewhere longer term or had a dyslexic child or had dyslexia themselves I probably would make a disclosure then and say like well I have dyslexia too and although every dyslexia is different" (P6)

> "I think I've told the mother of a child who was showing sign of.......lack of coordination, that I was dyspraxic" (P9)

> "...yes, especially when you get parents who come with their children and they're relatively devastated by the diagnosis [of dyslexia] and you're trying to sort of aid them to see that actually it's a description of how your child is living rather than necessarily being a negative" (P10)

While another doctor explained how they use it as a method of improving communication between themselves and patients in terms of being able to empathise with them. Another doctor explained they felt it was important that doctors are not viewed as being superior to their patient and will therefore tell their patients that they have SpLD as a way of making them appear more 'normal' to their patients and putting them at ease.

In terms of patient reactions, one participant explained that they thought patients really would not care as long as they were professional and did their job; they did not think that patients would have concerns over potential errors or think them less safe to practice. The situation being deemed appropriate or relevant to disclose to patients was stated by several participants and one explained how, in their specialty of obstetrics and gynaecology, the likelihood of a relevant time occurring were slim; however if it did happen then they would probably disclose.

Other participants were quite against the idea of disclosing to patients for a couple of reasons. Some participants were against disclosing personal information as it was deemed not relevant to the situation or not the patients' business, whilst another expressed a fear that patients may use it against them in some way.

> " Well it's just not relevant you know, it's about them, not me ....it should all be about them (laughs) it's not relevant and it would be a bit self-indulgent [to talk about my disability]" (P3)

> "I think it's personal, so...I think if I've reached approved documented competence to perform a procedure or do a task, that my disability is none of their business" (P5)

E. Telling others, family & friends

Most of the participants had told their families. The participants often remarked that their families had found their diagnosis to be amusing but they did not appear to be offended by this. Other participants explained that others just knew them as 'bad spellers' or 'slow readers' as opposed to attaching the label of dyslexia to them. The participants seemed to be more reluctant and selective in telling their friends about their SpLD.

> "My family know, they think it's hilarious (laughs) completely and utterly hilarious because whenever I leave notes they are always misspelt or say something weird, so yeah they know and they just laugh about it" (P2)

> "some of my friends know, not all of them but certainly some of them do know" (P2)

> "I told select friends but I didn't really know whether to tell other people" (P6)

4. Difficulties

The participants described experiencing a number of difficulties which have been separated into the appropriate related subtheme as follows:

A. Difficulties in medical school

The participants described experiencing many difficulties at medical school and often made comparisons with their fellow students. One participant explained how they always need extra time with their written work so their friends would be off to the pub, while they were still busy completing their work. While a different doctor explained that they always struggled with their work compared to their friends but they could never understand why this was.

> "I think it did have an impact on the way just made everything slightly more difficult and some things just took a bit longer" (P1)

"I never really knew why I struggled and why I had to work harder than other people" (P2)

Many of the difficulties that doctors described experiencing as a medical student involved writing as the main component. Writing essay exam questions appeared to be the area most effected by difficulties with writing; participants explained that they needed extra time in ordeer to express their thoughts clearly and process and check their answers. Also essay writing was described as difficult due to spelling weaknesses and again the limited time frame in which it had to be completed. Handwriting legibility was considered poor by the participants, especially during exams when under pressure with some participants explaining that their tutors had difficulties reading them when marking. This also affected tasks such as note taking during lectures and tutorials and record keeping.

" When I did it [their medical degree] there was an awful lot of written stuff, so you had to write essays so if you couldn't write or you couldn't get the stuff out or you couldn't spell the words, then you failed and so I do think it was a bit of a filter" (P2)

"When you have to write essays, and I hate writing essays, I don't have the time, you possibly need more like an extra 50% because you need time to not only read the question but you need to have time to read what you've written as well....and to process it... just because it makes sense in my head, doesn't mean that it comprehensible to the other person that's reading it." (P8)

The participants explained that they often experienced difficulties with short term memory and processing the information. One doctor remembered how they used to look over their fellow student shoulders during lectures to see their notes as they did not have sufficient time to process what had been said. While others described generally being slower at processing information and being unable to rote learn lists of information like other medical students seemed to be able to, as they had to be able to visualise information as a whole. This impacted on information given during lectures, preparing for and sitting exams.

"Doing notes in class, I used to have to look over people's shoulders to see what people had been said, cause I couldn't always remember it or it flashed up to quickly, that caused problems" (P6)

"I think a lot of how people prepare for examinations is immediate short term cramming, which for someone who has a short term memory problem is not as effective as it is for a lot of other medical students...unlike a lot of people that I was at medical school with, I couldn't learn lists, I didn't rote produce lists in the same way...I couldn't learn individual bits of a list, I had to see the whole thing and almost see it in a visual way" (P12)

This difficulty in processing information had a direct impact upon on student's exams and meant that many participants had to spend substantially longer preparing and revising for examinations. Written exams that involved answering long stem questions were particular disliked. Long stem questions are particularly designed to reproduce clinical information in a way that doctors deal with in the workplace, however participants described some difficulties processing the clinical data involved in the question. Written exams were also found difficult for one participant who explained that they only ever used bullet points during their written exams as it would have taken them much longer to write in whole sentences and there was not enough time during the exams. One participant explained that despite often doing well in practical and oral exams, their written exam responses were often criticised by their tutors as they were told that they were not answering the exam questions, they were answering the question that they wanted to answer.

"I found it very hard to process that information within the time scale given because it's quite a sort of information dense but you've still got sort of half a page a page of clinical data to assess quite rapidly, and that I found quite difficult" (P10)

"I've never done well in, especially written exams, MCQ's (multiple choice questions) not so bad but written exams have always been bad" (P8)

Other difficulties described by the doctors involve lack of mentorship or continuity with changing placements regularly. This may have had implications for disclosing and for

support and understanding given by colleagues. Also difficulties involving co-ordination were experienced by 2 participants in relation to learning surgical techniques and other clinical skills and another participant expressed difficulties with the calculations involved with drug calculations whilst in medical school.

> "The hand eye coordination for learning sort of surgical techniques was difficult" (P5)

> " I've always been kind of clumsy but I found following directions and coping in clinical skills and actually doing a slick examination that impressed a consultant difficult because I was missing out sequencing and it just never look very fluid" (P9)

> "Calculations...I was quite aware that I had to be careful with decimals and not getting (5 or my factors of 10 out) which obviously isn't a particularly healthy thing if you're trying to figure out drug doses and things" (P10)

B. Work

Difficulties that participants with SpLD experienced at work involved orientation related weaknesses, such as distinguishing left from right and clockwise from anti-clockwise, positions on a clock face and having a sense of direction. Participants described how they felt that for some people these orientation senses are instinctual, where as they had to methodically think them through each time.

> "When you look at a body map and you look at the front of the patient and then you have to reverse it so you're left and right is on the opposite side...I can't do that automatically, I have to think about it...so I know I write with my right and then I have to consciously reverse it when dealing with patients...I will say there is an injury at eight o'clock, but I would, I can't think what eight o'clock is unless I methodically thought it through and worked out what eight o'clock is" (P1)

> "It's quite useful in these large mega-hospitals to have a faint sense of direction and if you're going round from one very similar looking unit to another very similar looking unit down a very long corridor which has very few identifying

marks ....it could take me hours getting lost and it is kind of embarrassing"
(P9)

Some participants described difficulties in expressing their thoughts verbally and explained that this impacted upon meetings and their team work. Participants explained that finding the right words to say or being able to process what others had said quickly enough to be able to create an eloquent and succinct response was difficult.

"It takes me quite a long time sometimes to get words into my head that I want to say, so in meetings, big meetings I often don't say anything but would email stuff later because I know what I want to say but I can't articulate it in high pressured meetings when everybody is talking quickly, it's just totally phases me, I don't answer their questions" (P2)

"Trying to find the right words, that's the biggest problem I have, finding words and people could say everyone has that problem, but seriously, you know constructing sentences with the right words" (P8)

Organising skills were considered to be difficulties for some participants. Participants explained that they were not naturally organised people but that they make a large effort to be as organised as possible in their work.

"It's mainly with the organisation, but I think I've created quite a sophisticated strategy to organise things" (P5)

"I'm not a naturally organised person, I suppose I have had to very consciously learn a number of organisational skills, just because it's not something that naturally comes to me" (P12)

Again it was writing and all the tasks involving this that were considered the most difficult for the doctors at work. General writing was considered difficult by most of the doctors with some explaining that they prefer to dictate their work when possible as writing takes them longer due to the extra amount of concentration required and difficulties expressing themselves.

"Writing up patient's history...documenting everything you need to in their notes....I probably have to think about it a bit more and concentrate a bit more than somebody who is not dyslexic" (P3)

"Like someone could do a piece of work in an hour and it would take me 3 or 4 hours to do that work" (P8)

Poor hand writing was also commented on by several of the doctors with some explaining that their written work is much better when it is typed.

"I have got quite juvenile looking writing which people comment about. It is not your typical, you know, doctors' illegible, it does look quite like an eight-year olds" (P3)

"During my hospital time err.......regularly have problems with my hand writing and the notes, but when doing GP and I was typing because everything was in [medical notes software]. I am fully aware that my documentation is a step level better when typed as compared to when written" (P10)

The main cause of written work difficulties both when completing work by hand and typing were issues relating to spelling. The majority of the participants commented in relation to their poor spelling ability. Participants explained that when spelling they will get the letter back to front or transpose letters within words and had difficulties spelling, including drug names and medical terms. As a result of these spelling difficulties their written work often took them longer to complete as they were careful to avoid making mistakes. One participant explained that their work took them longer to complete because they knew what they wanted to write, but because they could not spell certain words, they had to think of alternative ways to express the sentence.

"Spelling is a real issue in medicine because you have to be, well for example, if I'm looking for drug names, I can't retain the spelling of a drug name, so it just takes me that little bit longer when I am writing prescriptions" (P1)

"it's difficult spelling, my spell age is age-appropriate, but it's difficult with the more complex and medical terms" (P5)

"Sometimes I read them [my notes] back and think 'my gosh what have I written here', it's an absolute spelling nightmare (laughs) I get my letters the wrong way round and often read it back and think should that be 'quiet' or 'quite'" (P2)

The lack of electronic medical spell-checkers on computers was criticised by some participants. Participants described how the computer systems that they use will often not have a spell-checker on them which was problematic when spelling drug names and general written documentation. One doctor reported how not being able to spell medical words can hold them back by explaining that because they were unaware that they were misspelling a medical term due to the lack of a spell-check in the system, they thought the computer system was wrong.

"Writing notes I always have to think about because all of the GP systems don't have spell-check on them, so every time you write anything, because you know that everybody is going to read it, I'm always thinking 'can I use that word, can I spell that word' and more often than not I have to use something easier to spell" (P2)

"I have nothing [no spell-checker on computer], so in general practice it's frustrating because often I know that I've not spelt something correctly, but I can't figure out. I know it sounds stupid, but I can't figure out what the correct spelling is. So I know what I want to say and I've spelt it wrong and I can't correct it" (P10)

Three of the participants explained that their spelling difficulties often involved non-medical everyday words, with one participant attributing this to the fact that they have not made the effort to learn them like they did for medically terminology. These participants reported being able to spell long and complex medical terms but struggling with very simple words. One participant tried to explain their difficulty in spelling non-medical words by explained that they find medical words easier to spell as they were more phonetically based which they found easier. Another doctor explained that they have a basic spelling book that contains everyday words and shows them how to add

suffixes which they use frequently to aid with their spelling of normal non-medical words.

> "If I have to write then I think it's actually more with the non-medical words [that I have difficulty with] because I haven't made an effort to learn [them]" (P3)

> "I still have spelling difficulties with spelling certain words although not usually medical words" (P12)

> "There are certain other words that I still don't know how to spell, 'colleague' I still spell it wrong and 'consider' for some reason is another word I can never spell but I can spell 'Amyotrophic lateral sclerosis' without difficulty whatsoever" (P12)

Other work related difficulties reported by participants involved being slower to process information and experiencing memory difficulties. Other participants described difficulties remembering information such as lists of numbers or tasks and explained that they are unable to hold information in their heads and that they often have to write it down in order to remember it.

> "You can't sort of do things as quick.....short-term memory is quite poor compared to most people's" (P2)

> "Certain aspects of my short term memory I have had deficits which I have learnt to compensate for....or at least recognise and make sure that I write things down instead" (P12)

These difficulties with short term memory affected one doctor's consultations and they explained how they struggle to remember patients' information and will have to write everything down and will often have to ask the patient to repeat what they have said, which then impacts on the time their consultations last. This participant also described experiencing memory blanks and that nerves often exacerbated these difficulties with memory. For some, difficulties with short term memory and concentration were worse when they were working in noisy environments or when they were completing night shifts.

"I've been trying to take a patient's history, people would tell me something and then err...and then for the first few years I had to write down everything that the patient said otherwise it would be like...like I just blanked and I couldn't remember what they told me and that would be worse if I was nervous, so I'd be there taking a history and without doing the notes, I could just be there going 'I know they've told me but but...it's just gone' and I would just feel like an idiot" (P6)

"I notice it most on nights, that I'm very very aware that err... processing data and things, I do have to keep going through it to make sure that I haven't missed something important or that I haven't picked up information that isn't actually there" (P10)

Reading was another difficulty reported by doctors with participants referring to often reading what they think they have written as opposed to what is actually written, or missing out lines of text or mixing up words and losing their place regularly when reading. Some described having to re-read text in order to gain a better comprehension of what was written. This impacted on the length of time that participants had to spend on reading documents and proof reading their written work to ensure no mistakes had been made.

"I will see a word, and it is actually a different word or sometimes it's not even there" (P1)

"I read the question wrong and then afterwards I realise that I read it wrong.........when I'm reading a sentence I have to read each word individually then I go back and read the words again and then maybe go back a third time to make sense of the sentence. Words do sort of mix up and I don't know which line I'm in" (P8)

"That's probably still one of the things that I'll sort of read something and think I've read it all and miss a line or miss something and just carry on without seeing it and that was one of those things that just carried on" (P10)

C. Difficult tasks avoided

When asked about any work related task that they avoid or strongly dislike doing, reading aloud was reported, especially if it is something that the doctor had not written themselves. Participants explained that they are often expected to read out information during meetings which made them feel very uncomfortable due to concerns over making errors when they read aloud. One doctor explained that they had difficulties with pronouncing words and was sometimes made to feel very awkward due to having to read aloud discharge letters during weekly meetings in front of various members of their team who were not so supportive towards their difficulties.

"It is the reading aloud things I will try to avoid.......so there are occasions when I would have to read something out from a report, or I'm in a public meeting and I would have to read something" (P1)

"I would be expected to read out discharge letters, I was expected to discuss these letters and remember what was going on with these patients, some of which I would have probably never have seen and things like that, I found it really difficult reading out loud in front of a crowd, in front of senior colleagues of mine, some of them were supportive and some of them didn't really believe in the disability and so would make me stand up and intimidate me, in sort of ways like, 'oh you don't pronounce things like that, how do you say it properly' or if I said an abbreviation they'd expect me to say the full version of it and they were just sort of......I they could tell that I didn't like it so they'd make it more uncomfortable on by questioning more about that patient, so that was probably the worst that I've experienced it" (P7)

Similarly to above, speaking in public was another avoided task by doctors, whether this was in relation to giving large presentations or speaking during staff meetings. When presenting, one doctor described having to learn their presentation off by heart otherwise they would make too many errors and another doctor explained that they just tried to avoid any tasks that could potential lead to speaking in public unless it was in an environment in which they felt safe in.

"At the beginning, I tried to avoid doing any presentations, writing anything for publication or anything that involves reading out loud if it's not in an environment I'm comfortable with" (P7)

"I don't like public speaking, unrehearsed public speaking, so a typical example, in a multidisciplinary team meeting you're given a paper on details of 50 patients that you have never met before on that morning and then you're asked to present them in the afternoon with a spreadsheet in front of a large audience, with all these awful words in and I think that's horrible for any individual but for someone with dyslexia or dyspraxia it's an absolute nightmare, you know, and I think that's the only task that I have gone out of my way to avoid" (P5)

Another doctor gave the example of having to prescribe medication that they had never prescribed before when they were on a busy ward. They described how their colleagues would probably 'take a stab' at doing it but they did not feel confident enough and so when it was quieter they would come back and look it up and learn it.

Written work (both by hand and typed) was a difficulty that most doctors experienced in some form and for some this developed into tasks that they tried to avoid. General administration, form filling, discharge letters, ward notes and lengthy written tasks were given as examples of tasks avoided by some doctors. One participant explained that because they are nearing becoming a consultant it was not possible to avoid any tasks.

"At the beginning I didn't even want to write discharge letters cause I thought that other colleagues were going to be criticising them" (P7)

"On a ward round if there are multiple people around I will get someone else to, if it's not my ward round I will get someone else to write but if it is my ward round I will write for myself just to ensure I know what's documented if that makes sense, but if I'm on a ward round with a consultant I will get someone else to do the writing" (P10)

D. Stress

Stress often exacerbated people's difficulties. Participants described being conscious

about getting stressed and the effect that this could have upon their difficulties and putting in extra measures to compensate and to try and reduce these levels of stress and not overwork themselves.

> "Because of having to do the extra measures [due to having dyslexia]...I do feel like I'm more prone to get stressed...I have to make sure that for me my lifestyle is all kind of where I want it to be and that I don't overwork" (P6)

Tiredness was also reported to exacerbate spelling difficulties and cause the standard of handwriting to decline. One participant explained that when they are tired their spelling and writing of medication can decline and so they always tried to be aware of when they were prone to tiredness as they felt they were potentially more likely to make a mistake. Participants also explained that they found being challenged when in stressful and pressurised situations made their memory and spelling ability worse.

> "When I'm challenged sometimes I just can't think how to spell a word" (P6)

> "In a pressured situation one forgets what the letters of the acronym stood for" (P9)

As a way of dealing with some of the stress participants experienced due to having SpLD, participants described how having open and honest relationship with team members regarding their SpLD has several benefits including reducing stress and error potential.

> "I think it [dyslexia] can be a positive thing and I think the more positive you are about it and the more you look at it and go out of your way to speak to other people who have got it and look at how you can best adapt to it" (P6)

> "I think it's just being aware of what your limitations are and being honest with your colleagues, being open and making yourself approachable so that people and nurses can double check with you and do feel that they are able to approach you and question you" (P12)

5. Coping strategies

In order to compensate for some of the SpLD related difficulties, the participants described various strategies that they had implemented to help ease these issues both during work and medical school. One participant explained coping strategies become almost second nature to those with dyslexia and that many probably would not recognise them as strategies as they have just become a way of life.

> "I have to be honest everyone I know who's got dyslexia sort of just gets on and you sort of suspect that you've found solutions to things but because it's just become so second nature you don't see it as a solution it's just life that you're getting on with" (P10)

> "I was using a coping strategy that I have developed on my own without realising it" (P8)

Coping strategies and confidence appear to be clearly related. Developing successful coping strategies can help people gain confidence, and having confidence in themselves and being able to talk to people can lead to creation of successful coping strategies. One participant explained that they often have to implement alternative coping strategies to overcome difficulties.

> "It just means that potentially you have to think of strategies to get you where you want to go" (P10)

A. Levels of SpLD and intelligence level

The ability to create appropriate strategies, especially those required to succeed in medicine, appeared to be based on the assumption that the individual had a sufficiently high level of cognitive functioning.

> "So I guess the more your general cognitive abilities are the better you can cope with having dyslexia" (P3)

> "I'm coming to this [working as a doctor] with an above average overall ability

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because otherwise I wouldn't have survived...so I think that if you were operating at an average level, then I think it's probably not quite so easy to pick up the compensatory strategies" (P1)

The level of a person's SpLD also came into question with participants expressing that they believed that those with stronger levels of dyslexia would find it difficult to be able to function at the required level needed to be a doctor.

"I think that if a person had more severe dyslexia then I would advise them on a different course, err.... I don't think that I would have gone into medicine if I had such severe dyslexia that I couldn't read, as much as you may want to do it" (P2)

"It sounds harsh but if you're dyslexia is to a degree where you know you can't function at an acceptable level..........you know at the end of the day patients deserve a doctor who can function safely at the same reasonably speedy and correct level of work, and so if your dyslexia means that you can't do that you should do something else" (P3)

One participant noted however that if there were the correct support aids in place then even those with more severe levels of dyslexia should be able to succeed. This contradicts popular stereotypes of SpLD (discussed above) of people supposedly having lower intelligence levels and being academically challenged.

"When you think about even severe dyslexia, it shouldn't be so much of a problem if you actually had the sort of IT technology where you can actually do things like voice recognition" (P9)

B. Medical school

The doctors described using various types of coping strategies when they attended medical school to help them conquer some of the difficulties described above.

For example, participants explained that when they were medical students they often had to take extra time to complete their work or to be able to check that it was correct.

Participants described having to work harder and taking longer than their fellow students as a way of revising better and working.

> "I looked up every drug up because I can't trust myself to spell it correctly, so that takes a lot longer" (P2)

> "I had to work harder than other people and I think as well with revision I had to spend more time during revision and with my notes" (P6)

One participant described going through a rigorous process of learning new spellings each night by writing them out 50 times each. The doctor explained that by doing this they were able to learn the pattern of the words not the actual letters making up the word. While another doctor explained that they would use the predictive text features on their mobile phones.

When it came to writing, some participants described using bad handwriting to disguise any potential spelling errors that they may have made. While another participant explained that they were able to type and use voice dictation software during medical school. For note taking during medical schools, doctors implemented strategies such as using online resources, dictating notes into a digital voice recorder or using them to record lectures to make notes at a slower pace after the lecture. One participant described colour coding their notes and trying to condense information down to key points.

> "When I did note writing I used to come home and re-write all of my notes and everything was always colour-coordinated and very organised...so I would try to put a lecture into one a full page of writing so that I could look and see all the key points around it and often it was colour-coded into anatomy, physiology, biochemistry and pharmacology and I still actually do that now" (P2)

> "My Dictaphone is just great because I was able to, when I'm revising I was able to err....read and sort of speak to myself on the Dictaphone and then play back, or record lectures and then play them back and then makes notes at my own pace as opposed to try and doing everything within the lecture and look at the screen" (P8)

Finding online resources that were more audio or visual based were also techniques used when revising for some participants, as opposed to reading copious amounts of text from a textbook. Media such as podcasts and videos were preferred even if they were created by a different medical school.

A lot of the techniques that the participants described using when a medical student involved being visual and practical based, such as drawing diagrams and making their notes as visually interesting as possible. One participant explained how cramming for exams was not effective for them and that they had to understand the whole process so that they were able to visualise it in order to fully understand it. Another participant described trying to make their work as practical and hands on as possible to help aid their memory when revising. Participants explained that they had to be able to understand the whole process of something and try to visualise this process.

> "I found my own ways of learning, making it very hands on, my revision was very different to my house mates....I would have lot of colourful posters all over my room, I wouldn't be concentrating on learning the big words but would be more about understanding the process in summary to hide the fact that I couldn't remember the longer words of pronounce them" (P7)

> "When I was in medical school I liked people practicing examination on me, because then in my own mind I was able to build the order of what to do and how it feels so that then, when I examine a patient I know what sort of....how to do it in the sense of the correct pressure to apply here and the rapport that you have with the patient while you're doing these various types of examination" (P8)

Two of the participants who were provided equipment through an official assessment of needs found that being provided with a laptop helped as they were able to type all of their work. Furthermore, assistive software such as mind mapping software and text to speech software were found to be useful strategies.

> "So as well as having time in my exams, I also had a grant so I could get a laptop so I could type everything and that made a huge difference to

the.....assessment of my work because it was a lot clearer, I think my marks were a lot more solid once I was typing rather than scribbling" (P10)

"I got some software that the university gave me, which I used but not really, some mind map software and some other, thing where you could scan a page and it would pick out the words so you wouldn't have to write it out or I don't know, that was quite useful" (P11)

C. Coping strategies at work

All of the participants during their interviews described using at least one form of compensatory coping strategy to help them in their workplace, which many believed were successful. Reasons for implementing such strategies were due to wanting to ensure patient safety and reduce error rate.

"Yes I have dyslexia, I've got strategies to live with it and I have no doubt that it does impinge on my professional life, I'm aware that I go slower to try and compensate for that....the strategies that I have put in to try and ensure my safety probably helps patients and it probably makes me more aware of potential dangers within my practice" (P10)

"Just in that we developed coping strategies that other people don't have to develop I suppose..... I think now I'm certainly in the last part of my career, and I've learnt a number of adaptive strategies" (P1)

The types of strategies used by doctors ranged from preferring to find a quiet location to complete their work so that they could concentrate and focus, to being able to distinguish left from right by the wrist that they wear their watch on. Two participants explained that to avoid reading aloud and associated reading errors when giving presentations they have developed a way of talking through the presentation.

When creating strategies, participants often described making them visual, for example using mind mapping or preferring to use visual online e-learning resources and videos to help keep up to date with information. As a way of coping with spelling difficulties (noted in 'Difficulties at work' above), participants often stated that they very much

replied upon the spell-checking facilities on their computer when there was one available. However participants reported that spell-checkers are often not on medical software so if they were particularly struggling in spelling a word they would ask a colleague for help. Some participants reported using Google or their iPhone or predictive text functions as a way of overcoming the lack of spell-check facilities on some medical computer systems. Some participants described rote learning spellings if they were going to be using them regularly. But one participant explained that they spell words by the pattern and not the actual order of the letters.

> "I try and have Google Chrome open on whatever computers I've got, because that's usually the best way of checking things like word problems" (P10)

> "If it is a word that I know that I'm going to use day in and day out I was just rote learn the spelling in my own time" (P3)

Spelling medical terms and drugs was described as difficult when using Microsoft Word as they would not be included in the spell-checker. Another participant noted that often they would type or write things quickly before they forgot them and in doing so they would make lots of typos, as opposed to spelling mistakes due to their SpLD. Whereas another participant explained that they actually hoped if anyone saw their bad spelling that it would be credited to typos as opposed to bad spelling. To aid with writing difficulties some doctors explained that they will dictate their written work in to a voice recorder and then use secretarial support to type it up. Or they will use a computer programme that is voice activated so that they can dictate their work straight on to the computer.

> "Dictation, letter are great because I can dictate, and I love that part of it, so some secretary has to work out all out all of my verbal jumble all my complicated spellings (laughs) and so I don't have to worry about that, so I love dictating, that has been that has been brilliant" (P2)

> "I could do that on my Dictaphone which was great because I didn't have to write it to type it, I could speak it....it was on the screen and err...on the screen you could then see straight away what you had written and then assess what you had written" (P8)

When reading, one participant described preferring to use yellow paper and another liked text to be written in sans serif fonts to avoid the text from distorting and to reduce visual stress when reading. One participant explained that they will read words individually and sometimes out loud to help them process and comprehend what is written.

The participants described not being 'naturally' organised and that they often enforced strategies to help them stay organised and sort out their work, such as using spreadsheets to plan their time, using diaries and electronic organisation devises such as personal digital assistant (PDAs) and iPhones.

> "I've got a big spreadsheet with what I'm doing between now and October so I plan six months in advance....I have that in [the] cloud so I can access it from my iPhone or my e-mail and from a computer and then usually have a printed copy in my briefcase and it's just a bit more flexible than a diary because things change regularly, you need to swap shifts and everything" (P5)

As a strategy to remember information and overcome short term memory difficulties, many participants explained that they wrote down important notes or created list of tasks and things not to forget.

> "Basically my note book, so I do a few little jotted things and write down details of things so I don't forget them and as the patients talking I'll do like a few little jotted things and I always keep a jobs lists and I try to do the reflecting back skill as part of your consultation skills" (P6)
> "I keep lists and make sure that there are lists for everything I do. I don't try and remember things in my head, I always write done all my jobs on my yellow paper to help remember" (P7)

Doctors reported that they were often concerned that they would make an error in their work due to some of the difficulties that they described experiencing above. As a way of coping and dealing with this, doctors described developing various methods of error checking. Participants described checking their own work very carefully and that they took extra care when writing prescriptions often going back over their work various times to ensure that they have written it correctly.

"I'm continuously checking everything and like making sure everything is you know right" (P8)

"I'm really careful when it comes to writing prescriptions and I will always double and triple checked because I know that, just looking at it may not tell me that I have written it down wrong" (P1)

"I am always asking my colleagues to check what I have done because I am never 100% sure of myself, so I suppose in one sense that is quite a good thing, but it is time-consuming and time isn't always available" (P2)

Other participants reported asking their colleagues to check their work or to confirm with them if they were unsure about something that the participant had written. This coping strategy, however, relies on people feeling comfortable to disclose their SpLD to their colleagues and also in one of their colleagues being around to ask when they need support.

"I would say to nurses that if I write anything that you're not 100% sure about do double check with me, so I would build in as many safeguards within that process as I could to try to reduce that risk of those kinds of mistakes" (P12)

Some of the tasks that participants were likely to check involved making sure dosages are correct in both amount and measurement used, and that they are not confusing dates and spelling checks.

"I'll think to myself through milligrams and micrograms, loads of times...and to double check and check again to make sure I'm right" (P1)

"When I'm writing drug charts and things I'm very very careful that everything is correct dose wise and spellings of drugs wise.....we have got.....the National Formulary, that's kind of everywhere, so if you want to cross check a dose or a spelling then that is easy enough" (P3)

D. Technology/formal support

Some participants had sought formal support in their workplace and were provided with specialist equipment to help them develop coping strategies to help in the workplace. This section is also linked to the 'Formal support' section under the 'Support' theme.

Other participants had implemented their own technology to help them, such as using Google and functions available on mobile phones. Most of the participants used auto-correct or predictive text functions of such technology to help with spelling and finding the correct words for sentences. Another participant explained that they use their iPhone to access their diary and uses calculators and spell-checks.

> "So technology is wonderful because, you've got your iPhone and with predictive on Google messaging, sorry predictive Google searching, you just start typing into a computer...I wouldn't go anywhere without my iPhone...so I do use it as a calculator, organiser and a spell-check basically" (P5)

> "You know those HTC's [smart phone] they've got a really good swipe programme on their keyboard, so instead to having to type out the letters, you can swipe along to those letters and it just comes out, it's predictive texting" (P8)

Voice Dictation Software particularly Dragon Naturally Speaking was used by three participants who reported that they found it very useful. One explained that it took a while to get used to using it but once they did it made a significant difference to their written work. Screen Reader software was also given to some of the doctors, particular TextHelp Read & Write. One participant explained that this helped them with comprehension

> "I was given Dragon software, which I love....and I'm in a job now where there's lot of emails and I hate it and having to write stuff so I've asked them if I can install the Dragon software on my laptop, err which they're going to do" (P8)

> "Read&Write software would read out text of the computer to me, which was good because I can, I have to reread stuff and it takes a bit more concentration to read" (P6)

One participant felt that if they had been 10 years younger they probably would have been able to benefit more from technology and been able to develop more successful coping strategies. Others reported that despite being given software to create coping strategies on they did not use them. Others found that they were not suitable or there was no provision for them in their working environment.

> "If I'd of had it from earlier on I think I would have done a lot better but because I could never access it once I had it anyway ......cause it wasn't suitable to use at work, you know there wasn't a programme for writing notes" (P6)

> "I aware that my writing is extremely poor and although I could type all the way through medical school or voice dictate, there is no provision for anything like that in hospital medicine" (P10)

Appendix 20 summarises the difficulties that the doctors reported, the clinical tasks that this impacted on and the coping strategies used by the doctors to overcome these difficulties.

6. Support

The participants had received various types of support which had been first implemented during different stages of their life from childhood to their current work positions. Two doctors explained how the types of support available for someone with SpLD are making it easier and more achievable to have a career in medicine.

> "When you think about even severe dyslexia, it shouldn't be so much of a problem if you actually had the sort of IT technology where you can actually do things like voice recognition" (P9)

The 2 participants who had graduate earlier (pre-1990s) did not report having any support in place during their whole learning process. However the idea of having support put in place for doctors with SpLD, if required, as long as it equalised them with other doctors, appeared to be embraced by all the doctors. Some noted that such support had now made the field more open and diverse.

"There are some incredibly bright dyslexic people who are very very perceptive who can communicate really really well and they would have never have even have got through the exams to medical school who are now getting through now and they are excellent with the patients" (P9)

"I don't think that we should get preferential treatment or dispensations because we still, we should still work the same on calls or be expected to cope with the same workload as everybody else, but if there are aspects that could be facilitated to make that easier then I think that would be of benefit to the institutions in which we work" (P12)

Four of the participants had been diagnosed with dyslexia whilst attending school and they reported receiving some sort of support during their schooling, prior to going to medical school. Participants reported receiving additional study support sessions each week and one participant also had speech therapy sessions. The most helpful support given appeared to be extra time during examinations.

A. Medical school

One participant thought it was important to note that providing support for medical students is about ensuring safe practice, and not about giving them an advantage over other students.

Out of the 11 participants, three of the doctors completed medical school without any formal assessments or support in place. One of these doctors graduated during the 1980s despite having been diagnosed with dyslexia during earlier schooling, another said they did not need support despite being diagnosed with dyslexia and the third suspected that they had SpLD but did not have a diagnosis. Five of the participants were diagnosed with dyslexia during medical school after experiencing some of the difficulties described in the 'Difficulties at medical school' subtheme.

Four doctors out of the five who were diagnosed at medical school explained how it was not until their fourth year of medical school that they decided seek some support. One participant reported that it was due to experiencing difficulties with revising for critical exams. The participants were referred to an Educational Psychologist for some

formal testing and then given an 'Assessment of Needs'. The doctors reported finding this assessment process a negative experience. One participant was told that they would not need the same level of help as other students with SpLD because they were studying medicine and others described their experience as a 'battle' to get any support in place at all. There appeared to be a general consensus that the assessors were unsure about how to deal with them and about what support would be useful to them.

> "When she did the report, I don't know why she... she did, but she said 'oh I should just use a dictionary' and like.....I wouldn't necessarily need the same help as other people 'cause I was a medical doctor and the university said that that was wrong because everyone else would get a laptop" (P6)

> "it was like this mega battle over trying to get some resources and the university support for students with disabilities kept saying 'well maybe we could get a grant to pay for extra tuition' and that kind of didn't sort of....that kind of fell through....I don't think they quite knew what to do really" (P9)

As a result of these assessments at medical school, the doctors were given a range of equipment and adjustments. The most useful formal of support given to students was again the opportunity to have additional time with their exams.

> "I got extra time in exams and it was the first time that I actually needed it, which was surprising to me" (P11)

> "I did use it just, I didn't need it but I used it [extra time] just to check I'd done everything right....I've been given extra time as part of my GP training and I found that I did actually need that, so valued it then" (P6)

Some participants were surprised that they had needed extra time during their medical exams. Some of the students were also allowed to type their exams and complete them in a small more appropriate environment as opposed to the main exam room with the rest of their fellow students. Some students were also given additional study support each week either in groups or on a one-to-one basis. Other students described receiving:

- Laptop
- Laser printer
- Scanner
- Digital voice recorder/Dictaphone for recording lectures
- Specialist software - Dragon Naturally Speaking (Voice dictation software) and medical dictionary programme
- Photocopying allowance
- Textbook allowance
- Extended library loans
- Spell checker
- Reading pens

Not all of this support was useful to the participants when they were medical students. Some participants claimed that they never used the physical equipment that they were provided with, such as reading pens and digital voice recorders.

> "They gave me this pen that could scan words, but to be honest I didn't really use the software or the Dictaphone to be honest" (P5)

Other participants explained that although they were provided with equipment and specialist software programmes, they were never shown how to use them and so were never able to use them. While another explained that they were unable to attend the support groups and classes, which they believe would have been beneficial for sharing ideas and talking to like-minded others, due to being away on placements.

One participant complained about the lack of communication in their medical school as their tutors and placement tutors were meant to be informed of their diagnosis to be able to present them with class notes, written literature or presentations ahead of classes. However they explained that this never happened and that with every changing placement they would have to explain their situation. Doing this also seemed to create quite a bit of anxiety for the participant which could in turn affect any other coping strategies that they have in place.

It is important to note however that some participants did have useful support when they were completing their medical degrees. Extra time was again considered the most

effective adjustment as it allowed participants to go back and check their work, but other simple strategies such as extended book loans and photocopying credit were also considered very useful.

> "Yes, all the other stuff was really really really useful particularly sort of the photocopying allowance and the text book allowance and the study support was really useful, to be honest everything was really useful apart from the software and that pen...they also made a referral to a specialist optometrist who specialises in colours....overlays and things, but that wasn't particular useful to be honest." (P5)

> "I got the highest mark in the year in the MCQ sections, so you know, that's where the extra time really" (P8)

One doctor explained that support they received made such a significant difference to their work and that you could tell that something had happened between their first 3 years and their final 2. They even went on to say that they wished they had pushed for a diagnosis when they were younger so that they could have had more support throughout their previous education. Helpful support that was suggested should be given to future medical students included anything that would help in shortening the length of time taking notes and writing, strategies to help keep up-to-date with current literature and reading, and podcasts of lectures and journals.

B. Work

The potential limitations of the clinical environment and the effect this had on the number of suitable adjustments possible, and support that would be appropriate for some doctors was recognised. But some participants suggested that if a doctor is unable to function at the required level for a particular specialty then there are other career options and specialties available that might be more suitable.

> "I imagine that there are only so many adjustments that can be made, and so if you can't function at that level then unfortunately there are other careers open to you with a primary medical degree" (P3)

Only two of the doctors described having support put in place for them in the workplace. One participant described the success of being able to dictate their letters and then have a secretary decipher their 'verbal jumble' (P2) to transcribe it and work out the complicated spelling contained within it. A different participant explained that adjustments have been made so that they now do not have to work in A&E on their rotations due to difficulties working in fast paced environments. This participant also reported that their colleagues have been more understanding about the additional time it takes them to process information (P6).

When the participants were asked about possible support that would be useful to doctors with SpLD, establishing role models and doctors with SpLD mentoring other doctors with SpLD were suggested by a number of participants. It was hoped that such support would raise awareness of how others cope and enable discussions about issues with like-minded doctors. Role models and mentors could also act as a point of contact and a source of information about support available and advice for doctors with SpLD and also their colleagues and employers. The doctors seemed to like the idea of knowing fellow doctors with SpLD and using them for support and reassurance. One participant told a story whereby after noticing very similar dyslexic traits in one of his colleagues, it turned out that they too were dyslexic. This led on to them discussing their issues and the strategies that they use to cope. This participant explained how it was nice to be able to discuss their dyslexia with someone who truly understands and that their colleague acted as a role model for them.

> "I think it would be good if there was a dyslexia doctors association because then you could say well actually this association says this and they have got this experience or they knows these certain experts or they have found this technology useful and actually I think it would be quite good to have that really and that might be a good form of support and a resource for the NHS I suppose as well." (P6)

> "I think another important point is there are no actually good role models, for dyslexics or dyspraxia medics, you know so I don't know a single senior doctor who says they're dyslexic....it's really difficult to know how other dyslexics have overcome their disability and whether they've just got sort of average or they've developed a weakness into a strength...Like peer support would be useful or

mentorship I think that would be very useful....and I think positive role models are always very useful in tackling discrimination, acceptance and sort of normalising differences" (P5)

Other potentially useful forms of support suggested by participants during the interviews involved anything that would reduce the amount of time spent taking notes, writing and reading. Specially designed 'dyslexic' books were suggested where they would have wide spacing between the words and printed on coloured paper without using Times New Roman as they found this font difficult to read. Implementing more electronic resources, such as for electronic journals, podcasts of journals and e-learning resources with strong visual and audio elements would be useful. Being able to dictate written work was the most frequently suggested idea, with doctors reasoning that it would make their written work quicker and that it is something that is already implemented for all doctors in some departments.

"Orthopaedic surgeons will come and do wards rounds with either a Dictaphone, well usually a Dictaphone and then a few hours later their secretaries will stick in the notes a beautifully typed version of their wards rounds and yet no one has ever suggested that there are any resource to actually help people with things like dyslexia to try and ensure patient safety" (P10)

Although most of the participants sought their support through work, medical school or school channels, some participants did mention other sources of support outside of these, which was beneficial to them. Some found a medical mentor accessed through other external organisations such as churches had provided mentorship and support.

C. Formal support

Some of the participants explained that they did not know that they were entitled to support or questioned whether there was any support available that could potentially help. Only 2 of the doctors had actually sought formal support assessments through their employer. When asked why other doctors had not sought support one explained that they would not seek any formal type of support through schemes like Access to Work due to fears that it would damage their career prospects and that they would be

actively discriminated against. Another doctor described feeling guilty about the prospect of seeking support due to the fact that they were a doctor.

> "Yes I've heard of Access to Work and I wouldn't apply for a no......because I would worry that it would damage my career prospects and I would be actively discriminated against" (P5)

> "Well I'd feel guilty because I'm working as a doctor, should I be getting all that?" (P8)

One of the difficulties highlighted by this type of assessment was not just the length of time that the whole process took but that the actual assessors are more education-based or are not medical-related, so it is difficult for them to get a real understanding of the demands of being a doctor. One participant described their experience of being assessed and the not very successful outcome:

> "I took this guy round my job.....I felt a bit awkward and it was difficult because he had no clue about medical technology and at that time there was nothing much out there and there still isn't really in hospital medicine for doing notes, so even though then he made all of these recommendations, like I should have a laptop and I should maybe print all my notes out and I could have a handheld, at the end it just wasn't practical and then it took a year to get a laptop and then it was really heavy and I couldn't get it round the wards and there was no technology on it suitable on it to do notes" (P8)

The participant then went on to explain that after this assessment, it took them a year to receive their laptop. Furthermore, they could only use the laptop as part of the hospital system so they were unable to use it at home to help with their assignments. Another participant explained that they were still going through the Access to Work process and had been waiting for their support to be implemented for several months but meanwhile they just had to manage as well as possible. The report recommended that they should receive a laptop which would have various pieces of assistive software, a portable printer and training on the software being provided and 6 hours of support. It was suggested that the doctor use programmes such as Dragon Naturally Speaking to dictate their discharge letters and ward round notes which could then be

printed to save having to hand write them. Also subscribing to journals electronically and using electronic textbooks which could then be read out by the computer using text to speech software. The participant did feel that this will be useful when it gets implemented but actually how useful this support will be is yet to be determined.

7. Career

Dyslexia had an impact on their career only for a couple of doctors; most of the participants said that they were more influenced by other factors. However, some did still suggest that certain specialties would be better suited for doctors with SpLD than others.

When asked if their SpLD had had any influences or impact on their career and their specialties choices, for some it was the first time that they had considered this notion. Responses indicated that participant's opinions on this were divided. Some participants remarked that although it was maybe not the main influences, perhaps on some level it had had some influence. For example, one participant suggested that it potentially led them to exclude certain types of careers, due to having co-ordination difficulties.

Overall the basis of specialty choice seemed to be mostly influenced by individuals' strengths and weaknesses, whether these were related to their SpLD or not.

"I think having a very mild SpLD, has probably influenced the route of my career has taken, and therefore I probably don't need a great deal of support...I think it would be wrong for me to convey that having SpLD is the main reason for me choosing any path...but I think a lot of the way in which things like SpLD affects your choice is...are completely subconscious, you don't think 'I'm choosing this because of', you just migrate to the things you enjoy and that come easy to you" (P1)

"I've never thought that my dyslexia or dyspraxia has influenced me, I think it did influenced me negatively but I never actually thought I could do a general surgical specialty or a highly complex surgical specialty....I did think very carefully about choosing what type of surgery would be suitable with reference to my dyspraxia, so

I think it influenced me to exclude, but I don't whether it influenced me to.....or because I wanted to go into something just because of my dyslexia" (P5)

One participant expressed the wish that they had had more support when studying or wondered if they had had better role models in medicine, then that might have had impact on their career specialty. Other participants were quite certain that having dyslexia had not impacted on their career choices and the career decisions they made were based upon other factors such as lifestyle and personal preferences.

"It was a complete lifestyle thing, I don't think it has anything to do with dyslexia" (P10)

"I think it's something that I think I'm good at and I quite enjoy, but no, I don't think having dyslexia has really influenced that choice" (P11)

A number of the participants stated that one of the reasons that they decided to enter the specialty that they are in was due to patient contact reasons. This is interesting because although most thought having SpLD had not had an effect on their specialty choice, they gave reasons that were also stated as their personal strengths of having SpLD such as communication with patients and practical skills (see theme no. 8 'Strengths'). This suggests that maybe having SpLD does have an underlying influence, even though individuals may not be aware of it.

"I enjoy the kind of one-to-one patient contact, you know you while you are giving an anaesthetic you can't be dragged off somewhere else, so that is quite nice" (P3, Anaesthetics)

"I like the people side and I like the, you know, the fact that it's whole person medicine in GP and you get the chance to be the patients advocate" (P6, General Practice)

"...essentially my patients and my timings and I get a longer built up relationship with the patient, you'd get to know them over time" (P7, General Practice)

"It's one of the few medical specialties, that has that residual capacity to spend time with patents and treat them as you want to treat them" (P12, Palliative Medicine)

"It's a very very practical job, that for me was the best thing and you know you're still working with people, talking to patients, talking to carers but you're not doing much writing" (P8 - Pharmaceutical Medicine)

For other participants, it was lifestyle factors, such as family and wanting to travel and the time at which they were making their choices that were the main influences. Some doctors seemed to have chosen careers based on liking the fact that their work is varied and contains different aspects and roles. Also the pace of their working environment and general interests and skills levels were factors. One participant explained that they liked surgery but knew that due to their co-ordination difficulties they would have difficulties doing complex surgeries, therefore they chose Obstetrics and Gynaecology where there was a good surgical element but it's not the primary role. Another participant explained that they like the routine within their job and that they like the fact there was a limited range of prescribing drugs and the terminology used, so they were always in their comfort zone. While another described liking their job due to the limited amount of writing involved and being very practical and hands on.

The key elements of those specialties that that were recommended to those with SpLD or the ones particularly enjoyed by the participants seem to involve minimum written work and maximum patient contact. Also being practical based but without the need for fine complex motor skills required for some levels of surgery. When it came to thinking about areas that were not suited, one participant explained that as long as a person had the ability that there was no specialty that would be unachievable.

"I can't instantly think of anything that I would think 'ew with dyslexia you couldn't do', No I would presume you could do everything, I think it would just depend on what level you were functioning to" (P10)

When discussing medical specialties that were perhaps more suited to a doctor with SpLD some of the participants suggested areas such as radiology and rheumatology, as there is no immediate stress or the pressure of dealing with dying patients. They

also reasoned that the report writing involved is often completed via a Dictaphone and that the consequence of making an error are reduced as they can go back and correct it. Child and adolescent mental health areas were also mentioned due to their high level of patient contact. Another area suggested, again for the minimal level of written work involved, was anaesthetics. One participant explained how there are not as many written documents, patient letters, notes etc, to complete as in other roles and that it is much more practical based but still involves working closely with patients.

> "The best job in the world was anaesthetics, minimal writing, lots of practical, but it was involving doing lots of night shifts and long days...you get lots of patients from intensive care, but the only writing you do is like a daily ward visit and total assessment otherwise it's a very very practical job, that for me was the best thing and you know you're still working with people, talking to patients, talking to carers but you're not doing much writing" (P8)

However another participant explained how they would not have chosen anaesthetics as a specialty:

> "I think anything that takes you away from severely ill patients is probably appropriate because if you need to be able to write prescriptions and know a lot of information or be able to find it on the block quickly, then that is not a good place for somebody with severe dyslexia, I would have never gone into anaesthetics because I would have always been looking up the stuff, and that would have been hopeless you know" (P1)

Regarding specialty choice, this participant stated 'anything that takes you away from severely ill patients is probably appropriate'. This could be in order to reduce the critical pressure that a doctor could be working under which could exacerbate SpLD difficulties, however to use the phrase 'takes you away' sounds quite severe and could lead to the impression that a doctor with SpLD is a danger and that they should be immediately removed from being near severely ill patients before they make an error.

General Practice was reported to be less appealing for one participant due to the likelihood of having to use a larger unfamiliar vocabulary and for another participant due to the quantity of written work involved. Another participant explained that due to

their dyscalculia they avoided paediatrics because of the amount of drug calculations involved and they feared being caught without a calculator on hand to aid them.

The amount of written work involved were reasons other doctors gave for medical research and psychiatry perhaps not being particularly well suited to a doctor with SpLD. Surgery was also highlighted due to potential co-ordination difficulties and a high pressured environment. Other pressured environments such as accident and emergency, emergency medicine and acute medicine were not thought suited to those doctors with SpLD due to the intensely pressured environment and acute decision-making required which could cause high levels of anxiety in doctors. One of the participants, who is currently completing their Foundation doctor training, explained that they initially thought that they would be at a disadvantage when working in high pressurised acute and emergency environments, however after working in them has now found that they actually coped very well.

Overall the common consensus seemed to be that people should make their specialty preference based upon their own personal interests and select one that most suits their skill set.

> "I think the wisest thing would be to choose a route that plays to your strengths" (P9)

8. Error

Most of the doctors seemed to be aware of their potential to make an error whether they believed it to be due to a potential increase due to their SpLD or because all good doctors should be aware of their potential to make an error.

> "I do suspect that there is a slight safety element with us, especially with written information if it's not clear, and you could say that that's not part of dyslexia but I think mine probably is" (P10)

Overall most of the doctors said that they had never made a serious error and that they had the strategies described above to help prevent them making an error. Some doctors explained that for important tasks then they will be extra careful and vigilant

resulting in a low error rate, whereas for less important things such as emails the chance of error would be higher due to a more relaxed approach.

> "When it is something important for example with a prescription, my error rate is low, whereas with something like reading e-mail, where possibly for example if some uses a double negative in an e-mail, then I will very often misread that, which lead me into a kind of difficulties, especially because you're reading so many e-mails" (P1)

The participants were divided in their opinions of whether they would be more or less likely to make an error due to the fact that they had SpLD. Some doctors agreed that they would be more prone to making errors but backed this up by stating that because they were aware of their limitations they have error checking strategies in place to compensate.

> "I think I am certainly more susceptible to make errors, and that, and this has taken me quite a long time to realise that that was the case and so I think the strategies that I use now are to compensate for the fact that I know" (P1)

> "I do think you're more prone to make an error but I find that I'm more conscientious about it as well.... I'm always cautious for watching out for an error that I might make or stuff ups that I might make" (P6)

Whilst some of the participants appeared to believe that they were potentially more prone to make an error, a few participants explained that they felt because they were very aware of where they were likely to make an error and have successful strategies in place to check for this, they believed that they were in fact less likely overall to make an error in their work.

> "I think that if you're just aware that you have a slight weakness there you tend to overcompensate so probably not" (P3)

> "I suppose to be honest I think I am less likely to make a mistake because I am so thorough" (P5)

> *"*The strategies that I have put in to try and ensure my safety probably helps patients and it probably makes me more aware of potential dangers within my practice" (P10)

The types of error that participants described being likely to make involved mis-reading information when reading aloud and forgetting things or mishearing information. Spelling drug names was another error concern and one participants explained that precautions had already been put in place to prevent people making mistakes with drug names and used the example of being no longer allowed to write 'penicillin' as it in is now referred to as 'phenoxypenicillin' so not to be confused with 'penicillamine', as mixing these up could have serious consequences for a patient. While another doctor explained that the only errors they would be likely to make would result from someone misinterpreting what they had written due to them experiencing word finding issues or someone else misreading medication due to their illegible handwriting. They also pointed out though, that all doctors should be aware of their error risk and that they should always be extra careful with their work.

Participants did also note that when they were tired, their coping strategies became less effective, which could lead to an increase in error risk. One participant explained a strategy they used to reduce the risk of error was to tell the nursing staff to always ask for clarification if they were unsure of what the doctor had written.

> "I'm always cautious for watching out for an error that I might make or stuff ups that I might make.....I think that when you get arrogant that's when you can make the stuff ups and not notice and that's when it gets dangerous" (P6)

> "So it's more when your usual compensatory things become slack because you're worn out" (P10)

Many of the participants described becoming almost paranoid about making mistakes and vigorously checking constantly for errors. Some of the coping strategies involving error checking are discussed above. However, one of the participants warned that constant checking and being so paranoid about making a mistake can lead to additional stress and become quite damaging especially for younger doctors. This

additional stress could then in turn affect the coping strategies that they have in place, thus their error checking would become rather counterproductive.

> *"Yes I think you are more prone to making an error but if you have, I probably have OCD [obsessive compulsive disorder], I think all female medics have OCD (laughs), and I'm sure I have OCD so I checked everything constantly and I am always asking my colleagues to check what I have done because I am never 100% sure of myself"* (P2)

> *"I've always been quite paranoid that I was going to do that, so I suppose that I have this inbuilt process whereby I double check most things I do especially when it's something written"* (P12)

All of the doctors reported being aware of error risk due to wanting to ensure patient safety. One of the doctors stressed the importance of not being ashamed to go and check their work and that doctors are only human.

> "Because I've got a disability, it makes me think 'so I shouldn't be guessing this', actually you know so it's not inhuman to admit that you don't know and I will go and look it up or I will ask someone, so for me I think I'm less likely because of the fact I'm more cautious" (P7)

9. Strengths

All of the participants at some point during their interview mentioned some SpLD characteristics that functioned as strength for them in their clinical work although some did not acknowledge that it was strength. Two participants explained how they had never really considered there being advantages to having SpLD, with one explaining that they could not understand why other people did not have the same strengths.
In total 7 of the participants described processing information differently to others, that they were often very creative in their thinking and memory, and that they had a strong visual memory. This was often a strength for them when learning new information and problem solving.

"I think very laterally and, so I'm quite a creative thinker....I find it very easy to make lots of sideways connections, and that, I find that I'll do that much more quickly than colleagues of mine who are far brighter than I am" (P1)

"I think I've got a very good visual memory more than like a written memory, I will see patients and recognise them and I'll remember seeing them and people are like 'oh how do you remember that" (P7)

"I think once I've learnt the pattern I can get to the conclusion better or more quickly....once, than a lot of my colleagues or in comparatively, but it just takes me longer to initiate that process" (P12)

Some of the participants reported how the practical elements of their work were particular strengths for them, such as the practical side of general examinations. Others explained how they find using a more kinaesthetic learning style more effective and how it made new processes easier to learn. One participant implied that it may have taken them longer to learn a task, but when they did they could do it just as well if not better than their colleagues.

A. Patient interaction

All of the participants in some form described finding the skills involved with patient interactions either particularly enjoyable or something that they considered a particular strength for them.

Six of the participants particularly made comments remarking how they understand that patients are not going to understand complex medical terminology so they make an extra effort to ensure that patients understand the information that they are being told. One participant highlighted that communication with patients is often overlooked by doctors however is very important as poor communication can lead to misunderstanding.

"I think I have got quite good consultation skills...it's no good them coming in and saying 'oh you have ischaemic heart disease and hypertension' because the patient doesn't have a clue what that means, so I suppose from that point of view I do work really hard to use simple terminology and simple words which is

also easier for me to use anyway (laughs)...yes communication is very important to me, to patients and it avoids a lot of the pitfalls that as doctors we fall into sometimes" (P2)

"I recognise that patients that don't use these terms everyday are going to find it hard as well, so I'm used to finding ways of explaining things that I've perhaps used to teach myself it and I think that way I can relate to the patient better as well which I think is an advantage" (P7)

The participants explained that often their reasons for ensuring effective communication with patients were due to an appreciation of where the patient is coming from, in terms of not understanding medical terms and language; and for some this was a task they particularly enjoyed. The most frequently reported strengths by participants related to communication skills and empathy and understanding of patient needs. In total 10 out of the 11 participants at some point during their interview remarked on the importance of trying to engage with patients and commented that they were good at empathising with, and relating to, patients.

"I related far better with the patients than the consultants really (laughs).... I'm probably better at talking and listening to people and getting to the bottom of what their issues are and I'm very interested in how people are living their lives outside the hospital environments" (P9)

"I feel like I really understand where the patient is coming, obviously no one can every totally understand where they are coming from, but I feel like I can engage with their feelings about a particular matter" (P8)

"Perhaps that's why I do palliative care, but I think I can, I feel like I understand people more instinctively than a lot of other people do and the difficulties that they face, even though they may not be directly linked to me" (P12)

One participant commented that although they can have difficulties in expressing themselves, they are still able to create an effective empathic and understanding rapport with patients. Some participants explained that having SpLD had given them a sense of gratitude and appreciation of what they had achieved in life. They explained

that having SpLD has given them a sense of compassion and care for patients and helped them in being empathic to patients, irrelevant to their background.

> " I'm aware that I have a weakness and that I'm quite lucky to get where I've got makes me more appreciative and I probably don't look down on people as much as I might and I understand people from different educational backgrounds and with different ranges of abilities and strengths as well" (P6)

> "It's given me a gratitude for I am now able to achieve whereas if I hadn't had my comparative advantages at a young age, I'd be lucky to work on a till at Tesco's, so I think it's given me the advantage of a gratitude and an appreciation of what I am able to do, which a lot of people don't have and I know it sounds a bit cheesy" (P12)

10. Type of medical school

When talking about their medical school education, there was a very mixed response as to the type of course that the participants thought was preferable. Some participants were more in favour of a problem based learning (PBL) style course, while others believed a traditional based course was more suited.

Some were in favour of PBL courses due to their practical nature, as the participants had higher practical skills and preferred hands on learning. They felt that this style of course was better suited to deal with the difficulties they experienced as a result of having SpLD.

> "It actually probably suited my style of learning much easier, like in hindsight it was a good thing...and because it was all very much hands on from the beginning and I knew from school that I had a poor attention span and that I couldn't sit in lectures all day long and I wouldn't be able to do that at med school so that's why I chose it more than anything else and it's worked quite well" (P7)

One participant explained how despite personally completing a traditional based course they could appreciate how PBL courses could be better suited to those with SpLD who

have a more creative thinking process and that they felt they would have found a PBL course better suited to their needs. They also pointed out that those who have a much more linear thought process would probably be better suited to more traditional based course.

> "I did a traditional course but I think I would have found a PBL course considerably more easy, or at least certainly teaching it......I see, I can see that it appeals to people who think how I think now and it doesn't appeal to those who would have benefited from more traditional course who have a linear thought type process" (P1)

Whereas another participant explained a more traditional style was preferred as they did not like the lack of course structure with PBL and that, as a result of that, they did very little work during their degree. A different participant who did complete a more tradition style degree, though, explained that this style was potentially more difficult due to the amount of written work required and that it exacerbated their difficulties with expressing their thoughts in writing and spelling.

One participant explained that they made informal enquires to various medical schools about the support that they provide for student with dyslexia when applying for their degree. They explained how they chose their course and school based on this feedback and were put off applying to some universities based on this. Another participant stressed the lack of awareness for tutors in medical schools and how more support should also be given to medical educators on how to support their students with SpLD.

> "I think that medical educators need more assistance on how to deal with this or on how to address students' needs" (P2)

Overall there seemed to be no agreement on preferred style of medical degree and it was up to the individual's skills set, whether they preferred the more creative and practical PBL style or whether the structure and order of traditional courses suited them better.

Discussion

The results showed that there were many influences and effects of SpLD on doctors in the workplace. Multiple themes were identified from the interviews, including 'difficulties', 'stigmas and discrimination' and 'strengths'. Many of the themes were related to each other and the effects of one often impacted on the outcome of another.

Kong (2012) found that for some adults, depending upon their personality and emotional state, being diagnosed with dyslexia was either quite a cathartic experience or a very negative one. For those who took the diagnosis negatively, as they began to understand and develop a clearer grasp of how having dyslexia impacted upon them, the actual diagnosis of dyslexia became liberating (Kong, 2012). Previous studies have found that for some individuals, gaining a diagnostic label of dyslexia has enabled them to develop their personal identity from feelings of being 'thick' (unintelligent) to 'different' and additionally, gaining a diagnosis empowered them to gain support and seek strategies to conquer any difficulties that they found disabling (Macdonald, 2012). The doctors in this study appeared comfortable with their diagnosis and did not describe having any particularly negative reactions to having SpLD or negative feelings towards their diagnosis, despite later explaining how they sometimes avoid certain tasks that may highlight their SpLD. However the doctors did seem uncertain about the specific nature of SpLD, questioning whether some of the difficulties they experienced were the result of having SpLD or instead due to personality differences or quirks. Some explained that they even wondered if privately everyone else experienced the same difficulties as them.

For many of the doctors, being interviewed as part of this study was the first time they had ever spoken at length about their SpLD. When completing the interview most of the doctors described how they had never really considered the effect or reflected on how having SpLD may have impacted upon their lives and work. During the interviews some of the doctors began to realise how SpLD have impacted on them, recognising with hindsight that their diagnosis accounted for many of their experiences with their work and education. Kong (2012) also found that on being diagnosed with dyslexia people began to be able to understand the reason for some of their previous experiences, which led to an improvement in self-image and self awareness. As part of their role, doctors are required to perform 'reflective practice' where doctors have to

critically reflect on their professional activities and decisions (Mamede and Schmidt, 2004). This is considered an essential characteristic of professional competence (Mann et al., 2009). However it was interesting that many of the doctors interviewed had not reflected on how their SpLD had impacted on their performance as a doctor until participating in these interviews.

SpLD are considered a disability (which is considered a protected characteristic) under the Equality Act (2010), however only one of the doctors considered having SpLD a disability; the remaining doctors were unsure about how they would classify it. Most of the participants considered themselves not disabled due to the overall impact of their SpLD either being managed or thought not to be as significant when compared to more physical or mental disabilities. The Equality Act (2010) defines a person as 'disabled' if their impairment has a 'substantial' effect on their ability to complete day-to-day activities. Therefore it is understandable that because some of the doctors felt their SpLD was being managed successfully or that they were not as affected as others with different disabilities, they would perhaps not perceive their SpLD as a disability. However Shakespeare and Watson (2001) stated that many disabled people often do not want to consider themselves as being disabled and can downplay the significance of their impairment in order to seek a 'normal' social identity.

Being uncertain about whether having SpLD was a disability only became an issue when the doctors were asked directly if they had a disability, for example when completing equal opportunity forms. The wording of these questions determined whether doctors considered themselves disabled in the context of the form, despite them not considering themselves disabled in general. Miller et al. (2009) found that when medical students were able to read the Disability Discrimination Acts definition of a disability, there was an increase in the number of medical students who believed they had a disability. This indicates that awareness levels of what disabilities are needs improving and that when asking about people's disabilities on documents, such as equal opportunity forms, the wording of the question is crucial if people are to understand it and disclosing accordingly.

Shrewsbury (2012) stated that those within the medical profession are likely to be of higher intelligence and have 'milder' SpLD than the general population. The doctors in this study also felt that as long as a person had the intellectual ability to be able to

study medicine and to compensate for any potential weaknesses caused by their SpLD then they would succeed in medicine. Therefore because the doctors have been successful in their careers and education they felt they did not warrant the classification of 'disability' and that others would not perceive their SpLD as a disability.

Shakespeare and Watson (2001) stated everyone is impaired in some way and Kahtan (1999) reasoned that due to the difficult nature of medicine and medical training most will be confronted with their individual weaknesses at some point in their training or career, not just those who have a disability or in this case of this study SpLD. Kahtan (1999) continues to describe how most doctors will experience a disabling aspect of impairment that will affect their work during the course of their career and lists hypothetic situation such as:

- 'a cardiologist is appointed to a consultancy at 33 years of age and becomes profoundly depressed at the thought of doing this job for the next 32 years'

- 'a surgeon's marriage breaks up under the strain of peculiar working hours and he gets seriously anxious and irritable in the operating theatre'

(Kahtan, pp.261)

These examples highlight how all doctors could potentially be disabled during their careers. Whether it is psychological or physical, most doctors are going to have to cope with difficulties that affect their work performance. Kahtan (1999) argued that every doctor should be viewed as an individual with their own physical, psychological and social strengths and weaknesses and that a more realistic examination of these would be more productive as opposed to labeling individuals as 'disabled' or 'normal'.

SpLD are what Goffman (1963) would have described as a 'not evident' disability in that it is not physical or apparent to an onlooker. This means that individuals can use a diagnostic label of SpLD to mediate between themselves and their environment and to explain their difficulties to others; therefore the label is aiding in explaining impairment (Riddick, 2001). However, this can only happen if the person chooses to disclose their SpLD. The theme of 'Disclosure', which emerged from the interviews was often closely linked with 'Stigmas and Discrimination', in that participants explained that they were often reluctant to disclose their SpLD for fears of stigmas and discrimination. Goffman (1963) commented that those individuals with hidden disabilities, such as SpLD, often have to consider how to control information regarding their differences from the 'norm'

and whether they should disclose their SpLD. Negative stigmas associated with SpLD influenced who the doctors disclosed their SpLD to, whether they sought support for their difficulties and also encouraged avoidance of tasks that might highlight SpLD.

Discrimination

Concerns about discrimination were expressed by one participant, who explained that they did not want to disclose their SpLD or seek formal support due to being in a very competitive environment and being concerned that declaring they had a disability would make them appear weaker in front of their colleagues, who were their competition in some regards. The doctors may have also been previously 'discredited' or had negative previous experiences relating to their SpLD which could result in them facing issues when considering disclosing their disability (Goffman, 1963).   Anecdotal evidence has suggested that doctors are not good at looking after their own healthcare and seeking appropriate help (Baldwin et al. 1997); perhaps because the medical profession presume that illness and disability happen to others and not themselves (Kahtan, 1999). Sanderson-Mann et al. (2012) also found that dyslexic nursing students tried to manage their difficulties on their own as they did not like asking for help. The doctors seemed to want to live up to an expectation that they should be 'perfect', but this can only increase the doctors' stress levels and potentially exacerbate their difficulties.

Mercer and Pinder (2000) stated that doctors generally find dealing with disability difficult and argued that the medical profession needs to 'encourage and value diversity rather than perpetuating the myth of the 'perfect being in the white-coat'' (Mercer and Pinder, 2000, p.962). Also the responses and reactions of others had impacted on whether the doctors disclosed their SpLD. Doctors described how people had responded to their disclosure with surprise or rejected the notion based upon the stereotype of SpLD not being consistent with the skills required to be a doctor. This could demonstrate that it is not just doctors who believe they should be 'perfect' and is evidence of enacted stigma (the actual experience of discriminatory behavior from others). According to Goffman (1963) people can be susceptible to stigma if they fall outside what society determines 'normal', however it appeared that for doctors, being perceived as anything other than 'perfect' by society meant that they could be susceptible to stigma, irrelevant to whether they had SpLD or not. A previous study

with nurses and healthcare assistants with dyslexia also reported that when they were diagnosed they questioned how they could be a nurse/healthcare assistant with dyslexia (Morris and Turnbull, 2006). Others also explained that they were hesitant to disclose their SpLD due to a lack of understanding of SpLD in the profession (Morris and Turnbull, 2006). Due to this type of enacted stigma and anticipated perfect stereotype of 'being a doctor' it is not surprising that some of the doctors are wary about disclosing their SpLD.

All doctors, irrelevant of having SpLD, may use impression management as a way of trying to control the impressions and information that they give to their colleagues and patients about their SpLD. The use of impression management also appeared to be the result of working in a competitive environment. Impression management appeared to be key factor in disclosing SpLD to others whether it is because the doctors with SpLD wants to relate to and build a rapport with their patients, or they want to limit the information that their colleagues know about them in order to not reveal any potential 'weaknesses' in a competitive world. Nursing students in a study by White (2007) were also found to use impression management as a way of getting other students to view them in a positive light and they controlled who they disclosed their dyslexia too. Therefore a doctor with SpLD could be consistently managing their impressions in relation to avoiding anything that may show their SpLD whilst simultaneously promoting their clinical skills as a doctor, and using their SpLD to both empathise and build report with their patients and also to gain support if required but not to appear weaker to their competitors. Similar to work conducted with dyslexic teachers (Riddick, 2001) the doctors appear to be in a contradictory position in that they felt having SpLD enabled to them to empathise with their patients and enhanced their communication skills, but having and disclosing their SpLD may discredit them in the eyes of their peers and colleagues and indeed the competitive world of medicine.

The participants described a competitive closed working environment which may not be the advantageous to those with SpLD. Additionally, the interviews with doctors indicated that their colleagues in the medical environment are not very sympathetic or supportive towards each other, often due to being in such a competitive environment. Edwards at al. (2002) reported that doctors have a poor record in relation to providing mutual support. Mercer and Pinder (2000) reported that there was a general lack of support from doctors towards doctors with disabilities. They also commented that

doctors found dealing with disability issues with their patients difficult (Mercer and Pinder, 2000) so this lack of support is perhaps not just specific to their disabled colleagues.

The level of confidence that participants had in themselves was also a factor in how participants viewed their SpLD. Those in the earlier competitive stages of their medical career appeared less likely to disclose to others. The participants suggested establishing role models or doctors with SpLD mentoring other doctors with SpLD in the hope that such support would raise awareness of how others cope, and enable disclosure and discussions about issues with like-minded doctors without the fear of being stigmatised. Some participants did not mind who knew about their SpLD due to being secure in their professional status and having reached a consultant post. These consultant doctors had reached a pinnacle positional in their career and felt secure enough with their status as a consultant that any potential stigma related to them having SpLD was insignificant in comparison. Such doctors could potentially be effective and supportive mentors for younger doctors with SpLD. The thought of knowing other doctors with SpLD and being able to discuss their dyslexia with someone who truly understands what it is like to work in a medical environment was valued by the doctors. This idea is reflected in the way that doctors felt they were able to empathise and help their patients if they or their families had SpLD. Medical role models and mentors could also act as a point of contact and a source of information about support available and advice for not only doctors with SpLD but also colleagues, employers and medical schools regarding being a doctor with SpLD. Research by Overeem et al. (2009) found that hospital staff teams lacked openness, but that consultants felt that sharing their experiences and personal reflections with their colleagues could not only improve the quality of these relationships but could also improve their performance.

In this study some of the doctors explained their SpLD related difficulties had been put down to them being 'stupid', and they referred to themselves as 'being stupid'. This may explain why the doctors have been put off telling others about their SpLD, fearing they would liken this to them just 'being stupid' or illiterate. Evans (2013) also found that nursing students thought that if they disclosed their dyslexia then others would equate this to them being stupid. Again this demonstrates how the negative stigmas associated with SpLD can affect disclosure rates. In a study with chiropractic students

with dyslexia, Kong (2012) reported that students thought others would believe them to be lazy or have lower levels of intelligence; however these concerns were only felt by the students and they had not actually experienced these attitudes from others. Research by Ridley (2011) mirrored these findings in that dyslexic nursing students described being referred to as 'lazy' and 'stupid' and they seemed to only focus on their negative and not the positives. In this study, the doctors explained during the interviews that they were also concerned that others may think that they were using their SpLD as an excuse to be able to avoid tasks or gain extra support. One of the doctors explained that they believed this to be true themselves, until they were diagnosed with SpLD and began to understand their effects. This demonstrates that some participants' fear of others thinking that they are using having SpLD as an excuse are valid. Riddick (2000) found that for some gaining a diagnostic label was a positive as it aided in dispelling any previous notion of the person being stupid or careless. Although Kong (2012) reasoned that if a person has reacted negatively to being diagnosed then this could result in a negative effect on motivation, suggesting that dyslexia actually may be used as an excuse so that certain tasks are not completed.

Some doctors agreed that if the situation was appropriate or it was relevant to disclose to a patients about their SpLD then that was fine and that in some situation it can actually help communication and relations with patients. The doctors described being able to relate to patients in this way as a particular strength for them. These participants appeared not to be concerned about stigmas associated with SpLD with regard to encounters with their patients, and explained that they thought as long as they were professional and performed their job that patients would not have concerns about them having SpLD, or consider them less safe to practise. However, a study by Roberts et al. (2004) found that disabled doctors (who had both physical and mental disabilities) had concerns regarding if their disability may weaken patients' confidence in them. The results from Study 2 found that a key reason why some doctors did not disclose to patients was because they did not think it was appropriate to disclose personal information to patients. The participants also seemed to be more selective in telling their friends about their SpLD. This again may be due to the participants not seeing it as relevant or appropriate. Alternative explanations could be that their SpLD does not affect them socially and therefore it is not an issue, or they are potentially concerned that their friends will attach a stigma to it.

An interesting point, highlighted by the doctors, was that often the option of choosing whether to disclose their SpLD to their fellow students when they attended medical school, was taken away due to the fact that the support they used for their SpLD was visible to others (additional time in exams, equipment, sitting exams in another room), and therefore students had to explain and disclose their SpLD. The physical adjustments/support made their hidden disability visible. The doctors recalled how the process of telling medical staff was often quite negative. Miller et al. (2009) also found that medical students were discouraged from disclosing their disability and seeking support due to experiencing negative stigmas and discrimination from medical students and staff. However one doctor in this study explained that their previous placement teams had been supportive and accepting which resulted in them feeling more confident in disclosing their SpLD to future colleagues. This highlights the importance of providing positive support from tutors and placements teams and how this can impact on doctors' future decisions to disclose. This is supported by Morris and Turnbull (2007a) who found that positive qualities and relationships with mentors were significant factors in student nurses' decision to disclose their dyslexia.

Effects of SpLD

The most significant SpLD-related difficulty noted by participants involved written tasks, both at medical school and when qualified. Nurses and student nurses have reported similar difficulties (Crouch, 2008 & 2010; Morris and Turnbull, 2006). If similar difficulties manifest across disciplines working in the same environment then it may be that a unified approach to supporting employees could be developed. But, the fragmented nature of postgraduate training and multiple regulatory bodies across the healthcare professions may act as barriers to this. This shows that it is important that during their education medical students develop transferable coping strategies and support mechanisms to prepare them for postgraduate work and life as a qualified doctor.

The main difficulty experienced by the doctors when writing was with spelling. Doctors described writing letters back to front or transposing letters within words and having difficulties spelling medical terms and drug names. Sanderson-Mann et al. (2012) also found one of the most problematic areas for dyslexic nursing students was with completing written documentation. Shrewsbury (2012) commented how spelling and

grammatical errors can be reduced through the use of spell check facilities available in word processing software. Although the use of spell checkers can help with general English, these do not contain medical terminology or medication names and the doctors reported a lack of electronic medical spell checkers on the computers used in the clinical environment. This lack of spell checkers results in doctors spending longer looking up spelling of medical terms or drug names and longer to complete general written documentation also. A potential solution to this is through the use of portable medical spell checkers, which has been suggested as support for nurses with dyslexia for when reading medical terms or writing care plans (Brunswick, 2012). But it was not just medical terminology and drug names that doctors had difficulties spelling. Some doctors reported more difficulties with spelling everyday words often attributing these difficulties to the fact that they had not made an effort to learn them, unlike medical terms, or because medical words are more phonetically based which doctors found easier. White (2007) also found that dyslexic student nurses had difficulties with spelling everyday words giving homophones as an example (words that sound the same but are spelt differently, such as 'there', 'their' and 'they're'). These again are words that a spell check facilities in word processing software will not pick up, as they are spelt correctly however are they are not the correct word for the context.

Similar to the doctors with SpLD who took part in Study 1, some of the doctors in Study 2 also described using avoidance as a way of coping with difficulties. Tasks involving reading, speaking or presenting in front of others were avoided due to concerns that their difficulties may show and potentially resulting in them being stigmatised by others. This could indicate that it is not the label of SpLD that the doctors find stigmatizing but their difficulty with spelling, speaking or reading ability (Riddick, 2000). This finding is supported by Carroll and Iles (2006), who found that the anxiety level of dyslexic university students increased when in a situation that tested their reading abilities, such as reading aloud in front of others. Their research also supported the assumption that frequent previous difficulties with reading have disposed adults with dyslexia to feel stressed and anxious when in situations that require an accurate level of literacy (Carroll and Iles, 2006).

There were various factors that appeared to exacerbate the difficulties experienced by the doctors. Stress was the most common of these; previous studies have also found that stress effects the difficulties of those with SpLD (Morgan, 2000; Illingworth, 2005).

The doctors did appear to be aware about getting stressed and the effect that this could have upon their difficulties, and tried to reduce these levels of stress and not overwork themselves. Stress levels of medical doctors are often particularly high with approximately 28% showing above threshold levels of stress, as compared to 18% in the general working population (Firth-Cozens, 2003). Miles (2004) explained that 'most of us experience stress at some point in our lives, but experience suggests that dyslexics are particularly vulnerable to it' (Miles, 2004, p.18), so this issue is particularly pertinent for doctors with SpLD. Singleton (2003) explained that when someone with dyslexia is experiencing high levels of anxiety and stress, their work performance will be affected, and they will experience a 'panic' reaction when faced with a situation they are unable to cope with. The ability to 'cope' in a situation where a dyslexic person feels uncomfortable is often where certain strategies to avoid these situations are applied. However, sometimes these strategies are not applicable and so stress can arise, exacerbating the person's difficulties. Research into dyslexia has confirmed that stress exacerbates dyslexic style difficulties, which is also true when in a clinical setting, and that coping strategies are often weakened by stress (Illingworth, 2005). Hulatt (2009) emphasised that if someone with dyslexia does not receive the correct support then this will result in an increase in stress, which if experienced for a prolonged amount of time could lead to the development of strong feelings of insecurity, which will be reflected in their work performance. This could have a severe effect on dyslexic doctors and, thus, ensuring that they have the correct strategies in place to aid them in the workplace could be crucial.

Coping Strategies

To cope with the difficulties and stress caused by SpLD the doctors had developed and implemented various compensatory coping strategies throughout their life and current work. The doctors described how developing these strategies became almost second nature to those with dyslexia and that many probably would not recognise them as strategies, as they have just become a way of life.

The doctors remembered using both informal and formal types of strategies to help them cope with the difficulties or barriers they experienced at medical school as a result of their SpLD. The doctors continued to use strategies in their work life as a way of ensuring patient safety and reducing error rate. Dyslexic nurses also cited patient

safety as their reason for implementing checking coping strategies in their work (Morris and Turnbull, 2007b). For some, creating and developing successful coping strategies helped the participants in gaining confidence and eased concerns about disclosing their SpLD. When creating strategies, participants often described making them visual, for example using mind mapping or preferring to use visual online e-learning resources and videos to help keep up-to-date with information. For the doctors, mind mapping software was also found to be useful when planning and structuring work, and text to speech software was found to be useful for helping with improving reading comprehension and proofreading. Mind mapping has been found to be useful to medical students in relation to summarising information and was perceived to be a useful learning tool (Wickramasinghe et al., 2011). Additionally, a study with nursing students has suggested that mind mapping is an effective way to develop critical thinking skills (Wheeler and Collins, 2003). Mind mapping could be an effective transferable skill for medical students to learn, which can be then applied to their future work when qualified. Being encouraged to try a range of software solutions whilst in undergraduate training may aid in the development of a more adaptable approach to coping in later practice.

Some doctors reported implementing their own support by using Google or iPhones or predictive text functions on their mobile phones as a way of overcoming the lack of spell check facilities on some medical computer systems. Shrewsbury (2012) discussed 're-purposing' technology such as smartphones, computer games (brain training) and digital voice recorders to help dyslexic learners develop coping strategies to process information. Implementing technology such as smartphone and tablet computers is useful for organising and planning and assisting in learning (Reid et al., 2013). These mobile devices are also being embraced in the public and education sectors as they can be individually tailored via software and apps to suit the specific needs of the user and could be a way to provide support to those with SpLD while still being 'mainstream and non-stigmatising' (Reid et al., 2013, p175).

Some of the doctors were unaware that they were entitled to support for their SpLD related difficulties in the workplace, whilst others specifically chose not to seek formal support. Doctors explained that they were unsure if there was any support that would be suitable to them, and one participant described feeling guilty about the prospect of seeking support due to the fact that they were a doctor. This is linked with the notion

that doctors should be 'perfect' and not need support, which is only reaffirmed with enacted stigma when others act with disbelief when a doctor discloses their SpLD. Another participant was concerned that if they sought formal support through schemes like 'Access to Work' it would negatively impact upon their career and they would be actively discriminated against in the future. This could be because they feared others would make assumptions about their skills based on the stereotype of SpLD or perhaps they feared it would interfere with their relationship with their colleagues. Kong (2012) reported that there is the potential for peers to become jealous due to those with SpLD being eligible for support.

The process of gaining formal support both in medical school and the workplace was also not viewed positively, and some of the doctors even described being discriminated against because they were studying medicine. Shrewsbury (2011) found that some support staff had expectations of medical students that were not in accordance with their expectations of students requiring adjustments. However Robert et al. (2004) found that medical school admissions staff felt that if the level of dyslexia was not severe then having dyslexia would not be problem during the student's medical degree, especially due to the technological support that is available for them (e.g. spell checkers, text-to-speech software). Those doctors who had tried to access formal support explained that the whole process from start to finish took a very long time and that the assessors were not medical based and so could not appreciate the demands and work involved with studying or practicing medicine. The 'assessment of needs' recommendations for medical students/doctors with SpLD generally included being provided with: a laptop computer with assistive software (voice dictation, text-to-speech and mind mapping software), a portable printer, training on the assistive software and support sessions. Subscribing to journals electronically and using electronic textbooks which could then be read out by the computer using text-to-speech software were also recommended. Being provided with laptops was found to be beneficial as it gave doctors easy access to assistive software and meant that they could type their work instead of writing by hand and utilise the assistive software when they needed it. Using voice activated software to dictate their work straight on to a computer was successful, as was dictating work into a digital voice recorder and using secretarial support to transcribe this. Software such as Dragon Medical, a specially designed voice activated programme for the clinical environment containing medical terminology from a vast number of medical specialties, could help the doctors when they are trying to spell

medical names.

However some doctors did not use the support offered due to limitations of implementing support in the clinical environment. When having to complete work in various location and when completing ward rounds, carrying around laptops/printers is not ideal. White (2007) also found that for dyslexic nursing students the use of laptops was beneficial for the academic aspects of their work, but had limited application in the clinical environment and that providing technological equipment in the clinical environment required commitment to learn how to use it. Training on how to use software is also required and using voice dictation software can take time to train to a person's voice and can also not be as effective if there is lots of background noise and if people are getting interrupted when dictating. It also means that people have to speak aloud their work, potentially in front of others which doctors may not like doing or it could be difficult to keep patient confidentiality. The doctors thought that being able to dictate more work would make their written work quicker to produce. Using voice dictation software has been found to reduce the time taken to write clinical letters for psychiatrists, however the time taken to then check and edit these letters was increased resulting in no overall time benefit (Sandilyan and Darley, 2013).

When in medical school adjustments such as allowing extended library loans, photocopying allowances, and additional time and suitable environment when completing exams had been found useful. The doctors thought it was important to highlight that providing support for medical students is about ensuring safe practice, and not about giving them an advantage over other students. Shrewsbury (2012) commented on how providing accommodations in assessments during medical education are not thought to adversely affect clinical performance or patient safety. Some of the participants in Study 2 who were diagnosed during school reported that additional time in their exams was the most helpful adjustment, although they did also receive additional study support sessions each week and one participant also had speech therapy sessions.

Error Potential

Ensuring patient safety was of the upmost importance for the doctors and, as a way of doing this, the doctors reported being very aware of their potential to make errors. The

participants expressed the view that all good doctors should be aware of their potential to make a mistake and should avoid becoming complacent regardless of whether they have SpLD and are more or less likely to commit an error. Concerns have been raised previously about healthcare professionals being safe to practise, due to worries that someone with SpLD would have an increase in their potential to commit an error, such as confusing medical terminology or medication names (Wright, 2000; Millward et al., 2005, Shrewsbury, 2012). In Study 2, the doctors explained that when completing important tasks, they will be extra careful and check compulsively for mistakes. However when completing less important tasks, such as reading general emails, they might be less vigilant in checking and therefore this is when they could be potentially more likely to make an error. Millward et al. (2005) commented how it could be beneficial to implement 'check and support' systems for important clinical tasks such as drug administration in order to anticipate and prevent errors from all healthcare professionals in general.

Some doctors thought they would be more likely to make an error due to their SpLD in principal, however they explained that because they are aware of their limitations they have error checking strategies in place to compensate for any potential increase in error rate. The doctors described constantly and meticulously checking their clinical work for errors and also asking others to check their work. In Study 1 doctors with SpLD report a higher number of issues being raised with their work, however when exploring this further in the interviews for Study 2, none of the participamts reported any particular issues being raised or errors with their work. Dyslexic nurses have also been reported to check for errors by ongoing re-checking as a means of ensuring patients safety (Illingworth, 2005; Morris and Turnbull, 2007b). One of the participants stressed however that this constant checking and almost being paranoid about making a mistake can cause the doctor additional stress which could have damaging effects, particularly for younger doctors, which could result in a weakening of their checking coping strategies. As previously discussed, stress has been reported to exacerbate difficulties which could weaken coping strategies. The doctors described other strategies that they used as a way of reducing error potential such as being open and honest about their difficulties with their colleagues, so that they felt they could ask for clarification or check information with the other doctor if they were unsure of something the doctor had written or said. However this is reliant upon the doctors not being

concerned about stigmas and feeling comfortable to disclose and their team having an awareness and understanding of what SpLD are.

Some of the doctors appeared to want other people to believe their errors were the results of other factors rather than relating them to having SpLD. For example one participant explained that they actually hoped if anyone saw their bad spelling that it would be credited to typographical errors as opposed to bad spelling caused by SpLD. This could be because the doctors describe feeling 'ashamed and embarrassed' due to their difficulties. Feelings of embarrassment caused by dyslexia have also been reported by other healthcare professionals (White, 2007; Morris and Turnbull, 2009b). This could, again, be due to the negative stigmas that the doctors thought others attached to SpLD and so they did not want others to put their errors down to having SpLD.

Strengths of SpLD

The doctors described being determined and diligent and often reported having to work harder than their peers due to having to find ways to implement coping strategies. Case studies with dyslexic nursing students also revealed that they felt they had to work harder than those without dyslexia, however their efforts were often not reflected in their results (Kolanko, 2003). Fink (2002) found dyslexic adults succeeded by being hard working and persistent, which the dyslexic adults attributed to the difficulties that they previously experienced in their own learning and a tenacious need to work harder and not give up. This was also found amongst the doctors in the current study, with many commenting that despite any difficulties that they may experience they were prepared to work hard to achieve their goals. Although some of the doctors had never acknowledged that there may be advantages of having SpLD, the doctors did comment on having various strengths in their clinical work associated with SpLD throughout the interviews. Doctors reported that they found the practical aspects of their work as a particular strength for them, such as general clinical examination and procedures. Sanderson-Mann and McCandles (2006) also suggested that dyslexic nursing students may perform better when in the clinical setting. This could potentially be due to work in this setting being more active and 'practical', which plays to the reported strengths of SpLD (Murphy, 2008). The participants described processing information differently to other doctors resulting in them often being creative and visual thinkers. This was found

to be strength when learning new information and problem solving. Strengths related to problem solving, spatial thinking and creativity have been linked to doctors with SpLD in other research (Shrewsbury, 2012).

The most frequently reported strength and tasks enjoyed by the doctors related to interactions with patient. Nearly all of the doctors noted the importance of trying to engage with patients and felt they had particular strengths in communication skills, empathy and understanding of patient needs. Effective communication is a key skill for doctors and failures to communicate effectively or a breakdown in communication can lead to misunderstandings and complaints (Maguire and Pitceathly, 2002; Cave and Dacre, 2008; Ha and Longnecker, 2010). Often those with SpLD can experience difficulties in expressing themselves verbally, however the doctors explained that they are still able to create an effective and understanding rapport with patients. The doctors gave examples of how most patients are unfamiliar with medical terminology so they make an extra effort to explain this to patients and ensure that patients understand the medical terms and the information being relayed. The ability to communicate effectively with patients has also been found to have positive effects on both doctors and patients. Maguire and Pitceathly (2002) reported some of these positives to be that doctors are able to identify patients' problems more accurately, patients are more satisfied with care and are more likely to adhere to treatment plans. Good communication has also had a positive impact on the doctor's own wellbeing in giving them greater job satisfaction and less work stress (Maguire and Pitceathly, 2002). Taylor and Walter (2003) found that adults with dyslexia often worked in people-orientated professions due to strengths in being able to relate to people; this could also account for why the doctors in this study enjoyed patient interactions. It has been found that adults with dyslexia are drawn to professions such as teaching, as they were able to empathise with their students (Taylor and Walter, 2003) and wanted to use their previous educational experience to provide their students with a better experience (Riddick, 2003). This was seen in this study, with the doctors wanting explain medical procedures and medication clearly to patients, as they understood how difficult it can be.

Some of the participants explained that having SpLD and the experiences that they have had gave them sense of gratitude and appreciation for what they have achieved in life, which in turn gave them a sense of genuine compassion and empathy towards

their patients. This is supported by previous research with dyslexic student teachers who reported that they felt their strengths in teaching lay in identifying, supporting and empathising with pupils with difficulties learning (Riddick, 2003; Griffiths, 2012). The student teachers accredited these strengths to their previous experience of completing education with SpLD and explained that having dyslexia had put them in a unique position to understand the learning needs of others (Griffiths, 2012).

Career

Lifestyle and personal preferences such as family, wanting to travel and the time at which they were making their choices were considered the main influences on the doctors' career choice. Most doctors thought having SpLD had not had an effect on their specialty choice. Research by Morris and Turnbull (2007b) also found that dyslexic nurses felt having dyslexia had not had an influence on the choice of work setting. However some of the reasons given by the doctors in this study for choosing their specialty had also been found to be personal strengths of having SpLD (e.g. specialties with high patients contact) or doctors reported avoiding specialties that involve some of the weaknesses of SpLD (e.g. specialties with higher levels of written work). This suggests that maybe having SpLD does have an underlying influence, even though individuals may not be aware of it.

When discussing medical specialties that were perhaps more suited to a doctor with SpLD some of the participants suggested areas where there is no immediate stress or the pressure of dealing with dying patients, where there are minimal levels of written work involved and it is possible to dictate written work, but with high patient contact and practical based. White (2007) also reported that pressurised environments such as the operating room and intensive care units may not be suitable to those with SpLD. Radiology and rheumatology, anaesthetics and child and adolescent mental health areas were mentioned as possible good areas for doctors with SpLD by the doctors in this study. Potentially because these specialties are slower paced and less intensive working environments.

Overall the doctors felt there was no specialty that would be unsuitable for a doctor with SpLD and that they should make their specialty preference based upon their own personal interests and the one that most suits their skill set. This was also the same for

choosing a style of medical course. The doctors expressed both strengths and weaknesses of completing different type of medical degree. The practical nature of problem based learning (PBL) courses was considered preferable to a traditional course due to higher level of kinaesthetic learning involved, a style which was better suited to deal with the difficulties they experienced as a result of having SpLD. The doctors thought that elements of PBL courses could be better suited to those with SpLD who have a more creative thinking process and some of the participants felt that a PBL course would have been more suited to their needs. However Robert and Mitchell (2005) highlighted a number of issues that student nurses with dyslexia found with PBL courses, such as difficulties in processing information quickly during group discussions, difficulties in expressing their thoughts clearly in group discussions, not wanted to scribe or read aloud during sessions, and becoming stressed when faced with responding to the group. The results from this study did also suggest that doctors with SpLD do not like completing tasks like reading and writing in front of others, which may be an area where adjustments or support could be provided during undergraduate training.

When deciding on the best style of medical course, it appeared to be down to the individual's preference as to whether they preferred the structure and order of traditional courses or whether was preferred the more creative and practical PBL style. A more traditional style was preferred by some participants, as they did not like the lack of course structure with PBL courses. However, more traditional based medical degrees were thought to be more difficult to complete by other participants due to the amount of written work required and as such it could exacerbate SpLD related difficulties with completing written work.

Conclusion

The research question for this study asked 'How are doctors with SpLD coping in the clinical workplace and what strategies, if any, are they using and how does this impact on their working lives?' In response to this, overall the results from Study 2 suggest that if a person has appropriate coping strategies in place then there is no reason why someone with SpLD could not practice successfully as a doctor.

Most of the doctors' views of SpLD and whether they classed it as a disability seemed

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to be in line with the social model of disability and was similarly described as it is in the Equality Act, in that if the doctors are able to perform their daily duties well, then they would not class themselves as disabled. There seemed to be good awareness of any impairments, strengths and weaknesses amongst the doctors, and they were able to create successful strategies around these to ensure they practiced medicine to the best of their abilities and with patient safety as a priority.

The participants did also discuss potential negative impacts of having SpLD as a doctor such as the competitive environment of clinical practice; this type of environment can result in an increase in stress. The findings indicated that the negative stigmas attached to SpLD often prevented the doctors from disclosing their SpLD or created anxieties about disclosing, which meant that they missed out on valuable support. Whether or not the doctors had a diagnostic label of dyslexia, SpLD or disabled, it appeared that due to their competitive environment and career anything that deviated slightly away from not just the 'norm' but 'perfection' was perceived as negative and potentially stigmatizing.

Overall, the doctors in this study appeared to be coping well with their SpLD and had created their own individual strategies to overcome any potential difficulties. There are still aids that could be implemented to ease some of their difficulties, such as more facilities for dictation but this could also be a benefit to all doctors. The doctors also discussed positive elements that they bring to the role, such as empathy and an understanding of patient needs, which could be a key factor in their success as a doctor.

The next chapter moves on to Study 3, which involves a questionnaire based study focusing on the effect of SpLD on medical students.

CHAPTER 8
STUDY 3 - FOLLOW ON QUESTIONNAIRE WITH UK MEDICAL STUDENTS

This chapter focuses on a follow up study completed with medical students with and without Specific Learning Difficulties (SpLD).

Background and need for the study

Improvements in SpLD testing and an increase in SpLD awareness have been found to contribute to the increasing number of students with dyslexia completing higher education (Kong, 2012). Nearly 50% of these students are not diagnosed until they begin studying on their course. Legislation in the UK, such as the Equality Act (2010), mean that those with disabilities cannot be discriminated against in the workplace or when in education. An education provider has the responsibility to implement 'reasonable adjustments' to help reduce the impact of a person's disability on their education and ensure that they are not discriminated against. Medical schools not only have to comply with UK disability legislation, but they also have to ensure that each graduating medical student has achieved the required competencies set out by the General Medical Council (GMC, 2009). Medical students are entitled to receive support to aid them with any difficulties they experience due to SpLD. However the availability, suitability and effectiveness of that support maybe effected when in the clinical environment. It is therefore imperative to gain an understanding of how medical students with SpLD are coping in their medical training and clinical placements and the possible strategies or adjustments that they are using to do so.

Concerns have been raised regarding fitness to practise and patient safety in relation to medical students who have been diagnosed with SpLD (Shrewsbury, 2011). Students must be "fit to practise" and SpLD may impact on skills such as prescribing and note taking, which may have serious implications for patient safety. In addition, the transition from university, where concessions and learning support are actively promoted, to the high pressure environment of the National Health Service (NHS) may disrupt established coping strategies and impact on the ability to perform.

Many students with SpLD develop coping strategies to overcome difficulties whilst at school, however the pace and volume of learning required for medical training at university could render such strategies as inadequate (Walters and Croen, 1993; Majumder et al., 2010). Research has shown that stress can exacerbate dyslexic difficulties, which could result in weakened coping strategies (Illingworth, 2005), resulting in the risk of potential error rising. Stress levels of medical students have been noted to be high due to factors such as overloading of work and competition during the learning process (Shah et al, 2009). Medical doctors have also been found to have particularly high levels of stress (Firth-Cozens, 2003).

When looking at how healthcare students with dyslexia cope, Coles (1990) found that students could be helped by addressing three key areas; supporting teachers in supporting their students, helping students learn, and devising better curricula. Murphy (2008) found that healthcare students kept shorthand notes and lists, used proof readers, technology and rehearsing instructions, indicating that many difficulties can be overcome by small adjustments.

Overall, research has indicated that the clinical performance and experiences of healthcare professionals, including doctors, can be affected by having SpLD. Provisional results from the research conducted with medical doctors in Studies 1 and 2 of this project have suggested that SpLD do have both positive and negative effects on doctors and that factors such as competitive environments can have an impact on this effect. Therefore those in the primary stages of their medical career or medical students maybe particular effected. Consequently, an additional study with medical students was conducted using an electronic questionnaire to establish if/how they are affected by SpLD too.

There is no specific research available regarding how medical students with SpLD, including dyslexia, cope both in a classroom-based learning environment and in a clinical environment. The proposed research will address this as detailed below and also compare the findings with the previous results from doctors with SpLD (Study 1).

Research aim

The overall aim of Study 3 was to establish if there is a difference between the views of medical students with and without SpLD regarding how they are coping in a university and clinical setting.

There were also secondary aims investigating:

1. To identify what difficulties medical students with SpLD may perceive they have in medical school and how they cope with these.
2. To identify what strengths medical students with SpLD may perceive they have in medical school.
3. To ascertain what support medical students with SpLD have in medical school and how successful it is.
4. To explore perceptions of medical students with SpLD held by both medical students with SpLD and those without.
5. To identify reasons for and against the disclosure of SpLD by medical students.
6. To establish if having SpLD has an effect medical students' career choices.

This study builds on the two previous research studies, Study 1 and Study 2, which were designed to collect similar data for qualified medical doctors.

Hypothesis

The research hypothesis for Study 3 was as follows:

'Having a specific learning difficulty will not have an impact on views of medical students regarding their coping as a medical student in a clinical and educational setting'

Method

This study was based on the design of Study 1 (as described in Chapter 6) in relation to the methods used; however in Study 3 an electronic questionnaire was sent to

medical students at the University of East Anglia (UEA) in order to gain a different perspective on how SpLD affect future doctors.

Initially the questionnaire was designed to be sent out nationally, but due to recruitment complications the data collection was focussed on UEA. The UEA undergraduate Bachelor of Medicine, Bachelor of Surgery (MBBS) degree is a 5 year programme. The main learning method is problem based learning (PBL) and students complete summative assessments throughout the 5 years, based on the competencies in Tomorrow's Doctors (GMC, 2009). Students attend placement in both primary and secondary care from year 1 of the course. Although knowledge and clinical skills are not assessed on placement students are assessed by tutors for their approach to learning and professionalism.

Participants

Inclusion criteria: To be eligible for the study potential participants needed to be a current medical student attending UEA, regardless of any other demographic characteristics (e.g. gender, age, ethnic background, year of study). This includes intercalating current medical students (i.e. taking time away from the courses) for reasons such as health or doing an intercalated degree. The potential participants also need to either have a diagnosis of SpLD or suspect that they have SpLD.

Exclusion criteria: Those individuals who were *NOT* current medical students attending UEA, or did not have a diagnosed SpLD or suspect that they had SpLD, were not eligible to take part in the study.

The questionnaire

As there has been very limited research into how medical students with SpLD cope in undergraduate medical training, the questionnaire that was designed and piloted for use in Study 1 with medical doctors (Chapter 6) was revised to be appropriate for use with medical students. Like the Study 1 questionnaire, the Study 3 questionnaire was created electronically using SurveyMonkey.com. This involved adjusting the wording of questions so that it referred to 'medical students' as opposed to 'doctors', removing questions that would only be applicable to doctors (such as 'what year did you graduate medical school') and by adding questions that were suitable for medical students but not doctors (such as questions concerning their university and medical

degree). Additionally, new questions were added based on the findings of Study 1 and Study 2.

The sections of the questionnaire remained the same to those outlined in Study 1. A full version of the Study 3 questionnaire is available in Appendix 21.

1. <u>Information for participants</u> – This was the first page that participants saw and it gave a general introduction to the study, the researcher's contact details and thanked the participants in advance for their time. A link to an electronic version of the 'participant information sheet' was available for if participants wished to read it again. There was a 'compulsory question' on this first page asking participants to 'tick' the response box option if they had read and understood the information about the study and gave their consent to participate. Only participants who selected this response could continue on with the questionnaire.

2. <u>Personal information</u> – This was the first page of questions for the participants and asked about their age, gender. The Study 1 questionnaire asked about participants' occupation and employment level; this was changed to ask about participants' year of study, which medical school they attend, whether they are on an undergraduate or postgraduate course and the type of medical course they are currently on (problem based learning, traditional or specify other). These questions were included as the original intention was to collect data from participants across several medical schools.

3. <u>Coping in the medical training</u> - this asked participants to rate on a 5 point Likert scale the extent to which they agreed from 'strongly disagree' to 'strongly agree' on a set of statements about stress in medical training and how they felt that they were coping with their work. There were originally 6 statements in Study 1 questionnaire which were re-worded so as to be suitable for medical students, 3 statements regarding stress levels when on clinical placements, and competitive environments of both clinical and university environments were added for Study 2 questionnaire.

4. <u>Strengths and weaknesses in general work</u> – in order to establish what participants felt their strengths and weaknesses were for everyday skills, they were asked to rate themselves on a 5 point scale from 'very poor' to 'very good'

on the 14 general skills from Study 1 questionnaire and an additional 3 skills; 'Spelling medical terms', 'Spelling drug names' and 'Working with numbers'.

5. Strengths and weaknesses medical practice - in order to establish what participants felt their strengths and weaknesses were on clinical placements they were asked to rate themselves on a 5 point scale from 'very poor' to 'very good' on a set of 27 clinical based skills. These skills were again based on the ones previously used in the Study 1 questionnaire with a few amendments to make them more suitable to medical students. Therefore 'supporting patients and colleagues' was split into 'supporting patients' and 'supporting peers'. Then 'communicating verbally with colleagues' and 'communicating in writing with colleagues' were changed in the Study 3 questionnaire to relate more to medical students: 'communicating with peers', 'communicating with tutors' and 'communicating in writing'. Also 'completing clinical examinations' was changed to 'examining patients' and 'teaching colleagues / students' has been removed as this was not relevant to medical students.

6. Perceptions of SpLD – this section asked how participants felt other people would react to having doctors with SpLD and asked them to rate their opinions from 'strongly disagree' to 'strongly agree', on 10 statements. For the Study 3 questionnaire, a further 6 statements were added concerning perceptions of medical students with SpLD.

7. Support – this page asks about what, if any, support medical students use in their university or clinical work and how effective this is. It asked about participant's use of assistive computer software and also if they used any informal coping strategies. Participants were asked to elaborate when possible on their responses in this section. For the Study 3 questionnaire, the question relating to if any issues had ever been raised due to their work was divided into whether issues had been raised in relation to their university work and also their clinical placements.

8. Career – to establish if having SpLD has influenced career decisions participants were asked to score 8 potential career influences on a scale of importance from 'very important negatively' to 'very important positively'. These were the same on both questionnaires. However, in the Study 1 questionnaire there were also open ended questions asking participants about their current

specialty and career; these were changed to ask about participant's future specialty preferences.

9. <u>Disability information -</u> This page was where participants were asked about whether they had been diagnosed with SpLD or not. This was a filter question; those who selected the 'no' option were taken through to the end 'thank you' page. Whereas those participants who had been diagnosed or suspected themselves to have SpLD were taken on to 3 more sections that had questions specifically relating to medical students with diagnosed or suspected SpLD.

10. <u>Other disability –</u> This page was designed to establish what specific SpLD participants had been diagnosed with and when participants were diagnosed.

11. <u>Overall effects of SpLD</u> – This section contained more general questions regarding the impact of SpLD on participants' lives in general and with their medical degree. It also asked about how they felt about having SpLD and if they ever tried to avoid areas of their work because of having SpLD. For the Study 3 questionnaire, additional questions regarding the participants' expectations regarding the impact of their SpLD and support when qualified were added.

12. <u>Disclosure</u> – The final section contained questions about who participants had disclosed their SpLD to and if they disclosed it when applying for medical school.

For this questionnaire there was only 1 final 'thank you' page (as opposed to 2 'thank you' pages in the Study 1 questionnaire, as these were different pages for those with and without SpLD inviting those with SpLD to participate in Study 2 on their page). All students, whether they did not have SpLD and finished at section 9 or did have SpLD and went on to section 12, were taken through to the same final page when they completed the questionnaire. On the page they were thanked for participating in the study and the lead researcher's contact details were given, in case they had any further questions. If the students required more general information about students with disabilities they were provided with the details for the disabled students information page from University and College Admission Service UCAS or told to contact the Disability Team at their own university, as this team are responsible for the provision of information and advice and for co-ordinating the support needed for students.

Keeping certain aspects of the Study 3 questionnaire the same as the Study 1 questionnaire enabled comparisons to be made of the results from doctors with SpLD gathered in Study 1 and data gathered from medical students with SpLD in Study 3.

Ethical approval

For this study ethical approval was sought through UEA's Faculty of Medicine and Health Sciences Research Ethics Committee. The Research Ethics Committee required some initial amendments with the research proposal such as adding a paragraph listing a complaints procedure and adding the question to the introduction page of the questionnaire asking if participants gave their full consent to participate. As noted above, this was a compulsory question and only those who selected it could continue on with the questionnaire. Once these amendments were made, the committee gave their full approval for the study to proceed.

Procedure / Recruitment

Recruitment emails were sent through the mailing lists for all 5 years of the MBBS by a registered user who was a member of the lead researcher's supervisory team in July 2012. This recruitment email (Appendix 22) contained information regarding the study, a Participant Information Sheet (Appendix 23), the contact details of the lead researcher and a link to the online questionnaire for participants to complete if they wished. A reminder email was sent using the same process 3 weeks after the initial invitation email (Appendix 24). A printout of the online questionnaire can be found in Appendix 21.

Data collection ran from 7th July 2012 until 30th August 2012 when the Study 3 questionnaire was closed.

Confidentiality

For the questionnaires, participants were not required to provide their name and were assigned a number when they submitted the questionnaire electronically; so there was no way to identify the participant. All of the information obtained during this study was treated with the strictest of confidence according to the Data Protection Act of 1998. All data obtained from all the studies were kept on a password-protected computer and were only seen by the lead researcher and members of the supervisory team for

analysis. At the end of the research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of.

Results

Data analysis

The data were downloaded from www.SurveyMonkey.com once the data collection period had ended and input into SPSS version 19 for analysis in the same way as the data from Study 1 (and as outlined below).

The questionnaire data was separated into two groups: (1) those students diagnosed with/have a suspected SpLD and (2) those students without SpLD. General descriptive statistics (e.g. percentages and means) were calculated. To explore any potential differences in the data between the 2 groups of students, comparative analysis using a 5% significance level was conducted.

The data was not normally distributed (Kolmogorov-Smirnov test p <0.005) so the requirements for use of parametric tests were not met. As in Study 1 the appropriate inferential statistics were calculated using non-parametric Mann-Whitney U and Chi-square analysis tests (Field, 2000; Dancey & Reidy, 2004; Jamieson, 2004). Again for the reasons outlined in Study 1, the mean and standard deviations have been reported for the data in the results tables. The data provided for the open-ended questions were reviewed and any commonalities between the responses from the students were identified and reported below to expand on the findings from the closed questions.

General description of the sample

In total 92 medical students at UEA completed the questionnaire, however after removing those who had not completed the majority (70%) of questionnaire, a total of 74 were used in the analysis. Of this total, 33 students reported having been diagnosed with or suspecting that had SpLD, the remaining 41 students did not report having SpLD. The majority of students were currently in their 2nd year of medical school (n=23) with the rest being spread over the remaining 4 year groups, with 2 students intercalating (Table 27). Forty-three percent (n=32) of the students who completed the questionnaire were aged between 20 and 22 years. In total 73.5% (n=58) of the students who completed the questionnaire were 25 years old or younger.

Medical Students	Number With SpLD	Number Without SpLD	Total Number
Age of students			
17 - 19	2 (6.06%)	6 (14.63%)	8 (10.81%)
20 - 22	15 (45.45%)	17 (41.46%)	32 (43.24%)
23 - 25	10 (30.30%)	9 (21.95%)	19 (26.68%)
26 - 28	4 (12.12%)	3 (7.32%)	7 (9.46%)
29 - 31	1 (3.03%)	2 (4.88%)	3 (4.05%)
32 - 34	0 (0%)	1 (2.44%)	1 (1.35%)
35+	1 (3.03%)	3 (7.32%)	4 (5.41%)
Students Year of Study			
1st Year Students	2 (6.06%)	9 (21.95%)	11 (14.86%)
2nd Year Students	7 (21.21%)	16 (39.02%)	23 (31.08%)
3rd Year Students	8 (24.24%)	5 (12.20%)	13 (17.56%)
4th Year Students	5 (15.15%)	7 (17.07%)	12 (16.21%)
5th Year Students	9 (27.27%)	4 (9.79%)	13 (17.56%)
Intercalating	2 (6.06%)	0 (0%)	2 (2.70%)
Total	33 (100%)	41 (100%)	74 (100%)

Table 27: Number (%) of student participants by year groups

Coping with medical training and clinical learning

The first section of the questionnaire concerned how students felt that they were coping with their medical degrees, in both their university and clinical placement environments. Students were asked to rate a set of statements on a 5-point Likert scale based on their level of agreement (Table 28). There was no difference in ratings between the 2 groups of medical students for either 'My university work can be stressful' and 'My clinical placements can be stressful'. However, both groups of students rated their university as more stressful than their clinical placements (related samples Wilcoxon signed rank test, students with SpLD $p<0.001$; students without SpLD $p=0.001$). When rating the statement 'my university work can be stressful', 48.48% of students with SpLD and 48.78% of students without SpLD 'strongly agreed' with this. However the scores for 'My clinical placements can be stressful' decreased to 24.24% for students with SpLD and 17.07% for students without.

Coping in the Workplace	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
My university work can be stressful	4.42	0.61	4.39	0.74	0.961
My clinical placements can be stressful	3.79	0.99	3.63	0.94	0.430
I cope well in stressful situations	3.49	1.03	3.81	0.72	0.129
I use strategies to help me cope with stress from my medical degree	3.58	1.00	3.71	0.98	0.428
I am doing well at my medical degree	3.46	0.91	3.54	0.79	0.683
I am often concerned that I will make a mistake with my work	3.91	0.88	3.76	0.92	0.382
I have been made to feel uncomfortable at university due to difficulties with my work	3.33	1.16	2.10	1.11	0.000*
My medical school has a competitive environment	4.06	0.93	4.05	0.76	0.650
My clinical placements have a competitive environment	3.58	1.15	3.54	0.90	0.639

Table 28: Mean scores and standard deviations for Likert scale scores for 'Coping in the Workplace'

Key: * significant at p<0.05   SD=Standard deviation
1=Strongly disagree, 2=Inclined to Disagree, 3=Neither, 4=Inclined to agree, 5=Strongly agree

When rating how competitive they felt their university and clinical placement environments were, there was no difference noted between the 2 groups of medical students for either item. When looking at the difference between the scores given for 'My medical school has a competitive environment' and 'My clinical placements have a competitive environment' however both students with SpLD (Related Samples Wilcoxon Signed Rank test p<0.001) and without SpLD (Related Samples Wilcoxon Signed Rank test p<0.003) agreed that their university environment was more competitive than their clinical placement environment. When looking at the individual scores, 36.36% of students with SpLD 'strongly agreed' that their medical school had a competitive environment; this reduced to 21.21% when rating the competitiveness of their clinical placements. Those students without SpLD, 21.21% 'strongly agreed' that

their medical school was competitive, however this dropped to only 4.87% who thought this of their clinical placements.

The only significant difference between the 2 groups of students was that those students with SpLD agreed that they had been made to feel uncomfortable at university due to difficulties in their work significantly more than those without SpLD. There was no difference found between the results for the remaining questions in this section (Table 28).

General skills and studying & clinical related skills

The next section of the questionnaire asked participants to rate their skills on scale of 1-5 (from very poor to very good) on different everyday tasks (Table 29). Students with SpLD scored themselves significantly lower than students without SpLD on 16 out of the 17 skills listed. It was only for 'working with numbers' where there was no difference found between the 2 groups of students. For students with SpLD 'typing on the computer' and 'processing visual information' were the highest rated skills. In contrast, all skills related to spelling ('spelling drug name', 'spelling of medical terms' and 'general overall spelling') were their lowest rated skills. Those without SpLD also rated 'processing visual information' as their highest rated skill along with 'reading'; their lowest rated skills were 'remembering information for long periods of time' and 'organising your workload'.

The questions then moved on to more clinical related skills, which the participants were asked to rate on the same 5 point scale as the previous set of general skills. Interestingly out of the 27 skills the students rated, there was only one significant difference found between the 2 student groups, this was for 'communicating in writing' where students with SpLD scored significantly lower than those without SpLD. When examining the individual mean scores for the skills, 'being empathetic' was the highest rated skill for those with SpLD, followed closely by 'team working and relationships with staff'. 'Completing drug calculations' was the lowest rated skills by medical students with SpLD and was the only skill to score a mean rating of 2 (poor).

For medical students without SpLD the highest rated skills were 'being aware of your limitations' and also 'team working and relationships with staff'. Similarly to those with SpLD 'drug calculations' were also the lowest rated skills for medical student without

SpLD along with 'discussing treatment options, including relative risks and benefits, with patients' (Table 30).

General Skills	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Remembering information for short periods of time	2.79	1.02	3.88	0.84	0.000*
Remembering information for long periods of time	3.00	1.19	3.44	0.78	0.046*
Organising your workload	2.94	0.90	3.44	1.03	0.030*
Spelling of medical terms	2.49	1.23	3.68	1.11	0.000*
Spelling drug names	2.27	1.23	3.42	1.12	0.000*
General overall spelling ability	2.52	1.20	3.68	1.01	0.000*
Writing by hand	3.06	0.93	4.00	0.87	0.000*
Writing legibility	3.15	0.97	3.76	1.18	0.010*
Typing on the Computer	3.64	0.86	4.10	0.83	0.016*
Reading	3.21	1.22	4.22	0.85	0.000*
Reading Comprehension	3.12	1.19	4.17	0.77	0.000*
Processing information heard	2.70	1.33	4.00	0.84	0.000*
Processing Visual information	3.61	1.06	4.27	0.67	0.005*
Expressing your thoughts verbally	3.00	1.32	3.66	1.04	0.023*
Expressing your thoughts in writing	2.79	1.17	3.81	0.84	0.000*
Time management	2.97	0.98	3.76	0.94	0.000*
Working with numbers	3.00	1.37	3.54	1.12	0.075

Table 29: Mean scores and standard deviations for Likert scale scores for 'General Skills'

Key: * significant at p<0.05   SD=standard deviation

1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Very Good

Work related Skills	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Examining patients	4.12	0.60	4.07	0.61	0.736
Diagnostic skills during consultation	3.85	0.67	3.93	0.61	0.576
Prescribing medication	3.24	0.90	3.34	1.02	0.437
Record keeping	3.36	0.99	3.44	1.07	0.702
Practical clinical skills	3.85	0.71	3.88	0.68	0.834
Taking patient information	4.24	0.56	4.07	0.61	0.250
Team working & relationships with staff	4.27	0.67	4.22	0.65	0.731
Being aware of your limitations	4.09	0.72	4.34	0.66	0.109
Responding effectively to emergencies	3.30	1.40	3.02	1.67	0.506
Following safe procedures	4.09	0.52	4.17	0.54	0.515
Being responsible for your own learning	3.94	0.70	4.00	0.78	0.719
Discussing treatment options, including relative risks and benefits, with patients	3.33	1.29	2.85	1.62	0.173
Explaining medicines to patients	3.18	1.40	3.05	1.56	0.784
Completing drug calculations	2.61	1.32	2.68	1.72	0.613
Communicating with patient's family/carers	3.52	1.66	2.98	1.90	0.185
Communicating with patients	4.18	0.58	4.15	0.53	0.751
Communicating with peers	4.00	0.75	4.05	0.63	0.878
Communicating with tutors	3.91	0.77	4.05	0.63	0.453
Communicating in writing	3.30	0.85	3.95	0.74	0.001*
Understanding medical ethical principles, including confidentiality	4.21	0.70	4.10	0.89	0.712
Ability to deal with own stress	3.36	0.86	3.68	0.96	0.057
Coping with responsibility	3.82	0.68	4.00	0.50	0.165
Coping with uncertainty	3.27	0.98	3.63	0.73	0.098
Working independently	3.91	0.72	4.12	0.71	0.185
Being empathetic	4.33	0.65	4.20	0.60	0.306
Supporting patients	4.09	0.947	4.00	0.87	0.450
Supporting peers	4.24	0.71	4.07	0.61	0.174

Table 30: Mean scores and standard deviations for Likert scale scores for 'Clinical Related Skills'

Key: * significant at p<0.05   SD=Standard deviation

1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Very Good

Perceptions of SpLD

To establish medical students' opinions and perceptions about doctors and medical students with SpLD practicing/studying medicine, all of the students were asked to indicate their level of agreement, on a 5 point scale ranging from 'strongly disagree' to 'strongly agree', on a number of statements that covered possible views of doctors and medical students with SpLD (Table 31).

Perceptions	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
Overall having a disability would impact negatively on working successfully as a doctor	2.67	1.11	3.00	0.89	0.089
A doctor with SpLD would have more weaknesses in the workplace	2.79	1.02	2.88	1.01	0.593
A doctor with SpLD would have more strengths in the workplace	2.79	0.65	2.49	0.68	0.065
A doctor with SpLD would be more prone to making errors	2.49	0.87	2.88	0.93	0.038*
A person with SpLD could make a successful doctor	4.46	1.03	4.37	0.89	0.210
A doctor with SpLD should tell their patients that they have SpLD	1.70	0.7	2.00	0.81	0.081
A doctor with SpLD should tell their colleagues that they have SpLD	2.73	1.15	3.32	1.23	0.029*
Patients would be concerned about being treated by a doctor with SpLD	2.36	1.03	2.73	1.25	0.197
Others members of staff would treat a doctor with SpLD differently	2.91	1.23	2.68	1.17	0.404
I would have concerns about working with a doctor who had SpLD	1.55	0.83	1.73	0.87	0.198
It is appropriate for a doctor with SpLD to use support strategies in the workplace	3.97	1.08	4.28	0.64	0.286
Medical students with SpLD should be given support during medical school if needed	4.5	0.666	4.48	0.60	0.477
Medical students with SpLD would be less likely to complete a medical degree	2.34	1.30	2.33	1.07	0.769
Medical students with SpLD should tell the medical school that they have SpLD	3.97	1.13	4.35	0.62	0.217
Medical students with SpLD should tell the fellow students school that they have SpLD	2.82	0.96	2.78	1.00	0.554
Medical students should disclose their SpLD to the NHS when applying for a job	2.85	1.03	3.50	0.93	0.017*

Table 31: Mean scores and standard deviations for Likert scale scores for 'Perceptions of SpLD'

Key: * significant at p<0.05   SD=Standard deviation
       1=Strongly disagree, 2=Inclined to Disagree, 3=Neither, 4=Inclined to agree,
       5=Strongly agree

There was no significant difference in how the 2 groups rated the impacts of disabilities on working successfully as a doctor or whether they thought a doctor having SpLD would have more strengths or weaknesses the workplace. However those students with SpLD were more inclined to disagree that 'a doctor with SpLD would be more prone to making errors', although both groups tended to select the middle 'neither' option rather than agree or disagree. Both groups did agree, however, that 'a person with SpLD could make a successful doctor' and that 'it is appropriate for a doctor with SpLD to use support strategies in the workplace'. Interestingly both groups of medical students agreed that 'medical students with SpLD should be given support during medical school if needed' and that 'medical students with SpLD should tell the medical school that they have SpLD'.

Both groups of students were also 'inclined to disagree' that they 'would have concerns about working with a doctor who had SpLD'. Furthermore, those students without SpLD were significantly more inclined to agree that 'a doctor with SpLD should tell their colleagues that they have SpLD'; although the scores suggest that most participants selected the 'neither' option. In contrast, both groups of students were more inclined to disagree that 'a doctor with SpLD should tell their patients that they have SpLD'. Also medical students with SpLD were significantly more inclined to disagree that they should disclose their SpLD to the NHS when applying for jobs.

All of the medical students with SpLD knew another medical student with SpLD and most of the students without SpLD did. Those students with SpLD were more likely to know a doctor with SpLD than those medical students without SpLD (Table 32).

	SpLD		Non-SpLD		Sig. (X^2, Chi squared)
	Number	Percentage	Number	Percentage	
I currently know doctors with SpLD					
Yes	19	42.4%	10	24.4%	0.004*
No	14	57.6%	31	75.6%	
I currently know medical students with SpLD					
Yes	33	100%	39	95.1%	0.198
No	0	0%	2	4.9%	

Table 32: Number (n) of students who know doctors/medical student with SpLD

Key: * significant at p<0.05

Support

When the students were asked about the types of support that they have in place, those students with SpLD reported higher use of mind mapping software, screen readers, and voice activated software (Figure 5) than students without SpLD. Spell checkers were the most frequently used by both groups of students, although approximately 20% more students with SpLD reported using spell-checks than students without SpLD. Interestingly, however, there was no difference found between the groups in their reported use of informal coping strategies to help with their clinical and university work.
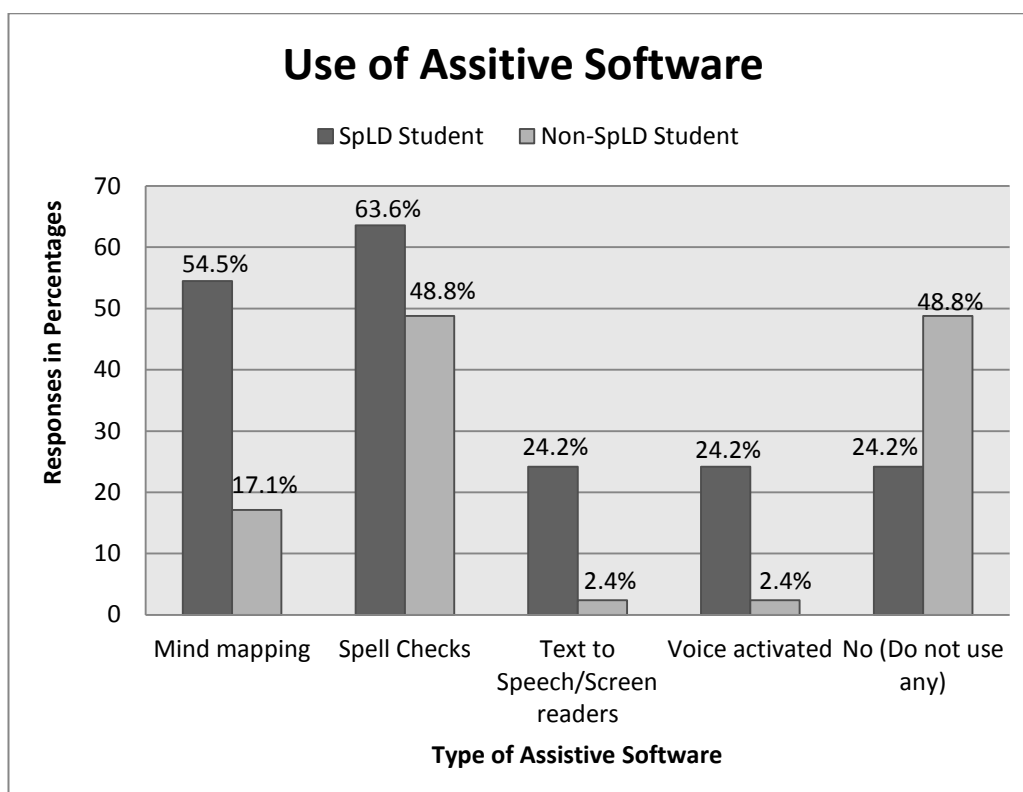
Figure 5: Graph to show students use of assistive software

When asked about the types of informal strategies that the students used in an open ended question, those with SpLD reported using various methods to check the accuracy of their work, such as asking other students or tutors to check their work or getting parents to check for spelling and grammatical mistakes or repeatedly checking their own work for such mistakes. Other informal strategies used by students with SpLD included using visual aids, such as drawing diagrams and flow charts, writing down tasks and making lists of things to do. Additionally, students with SpLD reported discussing their work with their peers as a way of helping them learn without the need to write down notes. Students with SpLD mentioned using support from mentors and

learning enhancement tutors. Some students with SpLD also noted that their work will sometimes take them longer to complete due to the additional time required to implement their coping strategy.

For those medical students without SpLD, one participant explained that they have on occasion recorded lectures as they could not write notes quickly enough, which resulted in incoherent notes. Whilst another explained that they ensured that they had personal study time where there were no disruptions or disturbance. Another student reported practicing their mental maths for when calculating drug dosages and another used team working and practice to help them learn their work.

	SpLD		Non-SpLD		Sig. (X^2, Chi squared)
	Number	Percentage	Number	Percentage	
Have any issues with your university work ever been raised in relation to errors or poor performance?					
Yes	10	30.3%	3	7.3%	0.010*
No	23	69.7	38	92.7%	
Have any issues with your clinical skills ever been raised in relation to errors or poor performance?					
Yes	6	18.2%	2	4.9%	0.067
No	27	81.8%	39	95.1%	
Do you use any informal strategies to help you with your university or clinical work?					
Yes	16	48.5%	10	24.4%	
Sometimes	8	24.2%	12	29.3%	0.084
No	9	27.3%	19	46.3%	
Please indicate the extent to which you feel you are currently coping at medical school?#					
	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
	3.19	0.92	3.18	0.82	0.835

Table 33: Number (n) of students who use strategies/have had issues with their work

Key: * significant at p<0.05   SD=Standard Deviation

        # Responses 1=Not at all, 2=Slightly well, 3=Moderately Well, 4=Very Well,
        5=Extremely well

When asked if any issues had ever been raised in relation to errors or poor performance, significantly more students with SpLD reported 'yes' to issues being raised in relation to their university work (Table 33). However there was no difference between the 2 groups' results when asked about any issues being raised in their clinical placements, with the majority of all the students reporting 'no'. Both groups of students also reported that they felt they were coping 'moderately well' at medical school and there was no difference between the scores for the two groups.

Career

The final section of the questionnaire that both groups of students were asked to complete involved questions about their future career choice and specialty preferences. When asked to rate how important a number of factors were in their future career choice, 'personal preferences' was the most important factor for both groups of students. 'lifestyle after completing training' and 'specialty characteristics' were also high scoring factors with both groups of students (Table 34). Also both groups of medical students agreed that 'role models' were the least important factor when thinking about their future career choices. There was no significant difference noted between the two groups when it came to career factor preference.

	Mean with SpLD	SD with SpLD	Mean without SpLD	SD without SpLD	Sig. (Mann Whitney U)
How important were each of the following factors in influencing your career choice?					
Personal Preference	4.42	0.50	4.56	0.50	0.240
Specialty Characteristics	4.18	0.47	4.28	0.51	0.376
Intellectual Content of Specialty	3.79	0.55	4.00	0.80	0.112
Specialty Training Process	3.82	0.58	3.87	0.86	0.559
Intellectual Ability	3.79	0.60	3.95	0.83	0.181
Career Opportunity	3.91	0.72	4.03	0.71	0.472
Lifestyle After Completing Training	4.24	1.03	4.26	0.91	0.895
Role Models	3.64	0.60	3.72	0.89	0.304

Table 34: Mean scores for student specialty preferences

Key: * significant at p<0.05   SD=Standard Deviation

Responses 1=Very important negatively, 2=Important negatively,

3=Unimportant, 4=Important positively, 5=Very important positively

The students were asked which medical fields they would like to work in, in the future (Table 35). For both groups of students, General Practice followed by General Medicine and Pathology were the most popular choices. Occupational Medicine was the least popular field, with no students from either group selecting it as a potential area to work in; 5 students with SpLD and 8 students without SpLD said that they did not know yet which fields they were interested in. Students were also able to provide their own response by selecting the 'other' response. Of the students who did this, participants with SpLD reported that the other fields they were interested in included Haematology, Cardiology and Palliative Medicine and participants without SpLD stated Dermatology, Oncology and Tropical Medicine as areas of future interest. Neurology was field of interest mentioned by participants in both groups.

	Number of students with SpLD	Number of students without SpLD
Which medical field would you like to work in the future? *(tick all that apply)*		
Anaesthesia	7	6
Emergency medicine	17	8
Intensive care medicine	5	15
General Practice	14	17
General Medicine	8	11
Obstetrics and Gynaecology	4	10
Occupational medicine	0	0
Ophthalmology	1	4
Paediatrics	6	21
Pathology	0	3
Psychiatry	3	8
Public Health	1	3
Radiology	1	4
Surgery	5	7
Don't know yet	5	8
Other	5	5

Table 35: Number (n) of students who chose particular medical fields in which they would like to work in the future

Both groups of students expressed the opinion that there was no overall specialty that suited doctors with SpLD. Those students with SpLD who did report that there may be

areas of medicine that would be better suited to doctors with SpLD stated areas such as 'non-surgical specialties' and one participant with Attention Deficit Disorder (ADD) explained that they were interested in Emergency Medicine because 'of the rapidly changing dynamic environment which has less repetition than other specialties'. Those medical students without SpLD thought areas such as Anaesthesia might be more suited to doctors with SpLD as opposed to more acute areas of medicine, especially if they needed more time to process and write down information.

Medical students with SpLD only

Those students who had been diagnosed or suspected that they had SpLD went on to complete an additional 3 sections of the questionnaire. In total 33 medical students completed these final sections. Of these medical students 19 (57.57%) had been diagnosed with dyslexia on its own, 5 (15.15%) students had a diagnosis of dyslexia together with dyspraxia, one (3.03%) participant had been diagnosed with dyspraxia, one participant had been diagnosed with Asperger syndrome (3.03%) and two (6.06%) participant had been diagnosed with ADD. Five (15.15%) participants reported suspecting that they had SpLD. In total 15 (45.45%) of them were diagnosed with dyslexia whilst at medical school and 8 (24.24%) had been diagnosed with dyslexia during their previous schooling.

When asked to rate how severe participants thought their SpLD were, the majority of participants said 'moderately' and only 4 participants rated their SpLD as 'severe' (Table 36).

Severity of SpLD	Number	Percentage
Very Mild	1	3.03%
Mild	10	30.30%
Moderate	18	54.55%
Severe	4	12.12%
Very Severe	0	0%

Table 36: Number (n) of students who rated their level of SpLD

When asked if the participants considered themselves to be disabled, 21.2% (n=7) considered themselves to be disabled, with 5 students out of this group considering themselves disabled because of their SpLD. Most of the students reported that having

SpLD had some impact on their life and on their medical course, with the impact on the latter being more frequent (Table 37).

Almost 40% of the participants tried to avoid certain aspects of their course due to their SpLD at least 'sometimes'. When asked to describe aspects of their medical degree that they try to avoid, participants listed tasks such as writing essays and written projects, reading, reading aloud, and writing during group situations and PBL sessions. Keeping attention and processing information during lectures, and distinguishing left for right during clinical examinations were also mentioned as difficulties for students with SpLD.

	Always	Usually	Sometimes	Rarely	Never
Does having SpLD impact on your overall life?	3 (9.09%)	10 (30.30%)	10 (30.30%)	8 (24.24%)	1 (3.03%)
Does having SpLD impact on your medical course?	5 (15.15%)	12 (36.36%)	13 (39.39%)	2 (6.06%)	0 (0%)
Do you try to avoid certain aspects of your course because of having SpLD?	2 (6.06%)	4 (12.12%)	7 (21.21%)	10 (30.30%)	8 (24.24%)

Table 37: Number (n) of students with SpLD rating the impact of their SpLD

Support

Nearly half of the medical students (48.48%, n=16) had sought help or support for their SpLD from their medical school and reported using the support offered, whereas 24.24% (n=8) of medical students reported seeking support from their medical school but not using it. The remaining students reported not seeking any form of support from their medical school (27.27%, n=9).

When asked in an open ended question to explain their reasons for seeking support or not, some of the students who had not sought any support for their studies gave reasons such as 'I don't want the medical school to judge me' and that 'I would rather not be treated differently'. Other students had sought support previously but explained that it was found to be unhelpful and even 'grossly inadequate'. Some of the students explained that they were unaware that there was support available to them. While others explained that they felt that additional support was unnecessary as they were

coping well in their work and had already developed good study strategies and coping techniques through their previous studies.

Almost half the students (n=16) reported developing new coping strategies since starting medical school. Four of these students explained that they now use mind mapping techniques to help them focus their attention when learning particular areas of medicine, and for revising and general organisation. Others used printed out notes, recorded themselves reading their notes on a voice recorder and used colourful textbooks to help when learning new information. Trying to be organised in their studies was also mentioned by students in terms of being 'more organised at reading around subject before teaching or clinical practice' and one student explained that they tried to stay organised as a way of keeping control over their studies. Other students reported listening to podcasts or enjoying discussion groups with friends. Checking their work either themselves or asking others to check it for mistakes was also described as a new strategy, as was spending additional time to learning new medical words or spellings.

The majority of students were inclined to agree both that they do sometimes try to hide their SpLD and that they thought others would judge them for having SpLD (Table 38). As a group, the students seemed to be unsure if having SpLD made them more prone to making errors, with responses from different students across the full range of options. Similarly, the majority of the students selected the middle 'neither' option when asked if 'having SpLD will make me a better doctor'.

	Strongly Agree	Inclined to Agree	Neither	Inclined to disagree	Strongly disagree
I sometimes try to hide my SpLD	6 (18.18%)	9 (27.27%)	8 (24.24%)	6 (18.18%)	4 (12.12%)
I think that others will judge me for having SpLD	6 (18.18%)	14 (42.42%)	7 (21.21%)	6 (18.18%)	0 (0%)
Having SpLD makes me more prone to making errors	2 (6.06%)	11 (33.33%)	11 (33.33%)	8 (24.24%)	1 (3.03%)
Having SpLD will make me a better doctor	1 (3.03%)	4 (12.12%)	24 (72.73%)	4 (12.12%)	0 (0%)

Table 38: Number (n) of students with SpLD rating 'perception' related statements

When the students were asked about their future work as a doctor, 42.42% (n=14) of the students reported that they did not anticipate experiencing any SpLD difficulties when they are qualified and in employment; however 33.34% (n=11) selected the 'maybe' option and 24.24% (n=8) of the participants did anticipate difficulties. Difficulties anticipated by medical students with SpLD concerned writing prescriptions, writing notes, processing information and completing drug calculations. Participants also described anticipating difficulties with confidence and the need for additional time.

Overall 54.54% (n=18) of the students did not expect to have support when qualified as a doctor and only 9.09% (n=3) did expect to be provided with support. The remaining 36.36% (n=12) selected the 'maybe' option for this question.

Disclosure

Most of the students had disclosed their SpLD to a member of staff at the medical school but not to other non-medical university staff. Students were also likely to have disclosed their SpLD to other students, their family and friends (Table 39). However students appeared much less likely to disclose to clinical teaching staff at their clinical placements and also to their patients. In total 10 out of the 14 participants who had been diagnosed before entering university had disclosed their SpLD when they applied for medical school.

	Staff in the Medical School	Other non-MED University staff	Clinical teaching staff	Fellow students	Friends	Family	Patients
Yes	21 (63.64%)	11 (33.33%)	9 (27.27%)	25 (75.76%)	26 (78.79%)	27 (81.82%)	3 (9.09%)
No	12 (36.36%)	22 (66.67%)	24 (72.73%)	8 (24.24%)	7 (21.21%)	6 (18.18%)	30 (90.90%)

Table 39: Number (n) of students with SpLD disclosure rates

When asked about their reasons behind their disclosure decisions many of the students gave quite negative reasons, such as concerns that it would disadvantage them when applying to medical school. Other students explained that they disclosed their SpLD so that they could get the support they required, as some found adjustments such as extra time in exams to be very useful. One student explained that

they usually disclose when writing or completing calculations in front of people as they become embarrassed about errors. Three students explained that they thought it was good to be honest and always disclose and they trusted that this information would not be used by others against them. However one student said that they did not disclose their SpLD as they did not want to be thought of as a 'potentially difficult student'.

Comparison of medical students and doctors with SpLD

As the medical students completed a similar questionnaire to the doctors in Study 1, the results for doctors with SpLD from Study 1 and the results from the medical students with SpLD were compared where possible. This helped to establish if there were any differences between how medical students and doctors cope with SpLD. The results for both groups have been discussed separately (in Chapter 6 for the doctors and previously in this chapter for medical students) in relation to their peers without SpLD. The following results sections are only based upon those medical students and doctors with SpLD. No additional questions have been added and the completion instructions for each section were the same as described above.

In total 40 doctors and 33 medical students reported being diagnosed with or suspecting that they had a SpLD. Of this sample 32.5% of doctors and 57.57% of medical students had been diagnosed with dyslexia whilst attending university. Overall 5 doctors and 5 medical students considered themselves disabled due to their SpLD and the majority of doctors (37.5%, n=15) and medical students (54.55%, n=18) rated their SpLD as a 'moderate' level of severity.

Coping in the workplace

The first section of the questionnaires to be compared related to how medical students and doctors with SpLD felt that they were coping in the workplace/university. Doctors with SpLD were significantly more likely to agree that they used strategies to help cope with stress caused by their work (p=0.006) and that they do their job well (p<0.001) when compared to medical students with SpLD. That was the only significant difference found between the results in this section. Both groups agreed strongly that their work/university work was stressful and agreed that they were concerned about making errors in their work (See Figure 6).
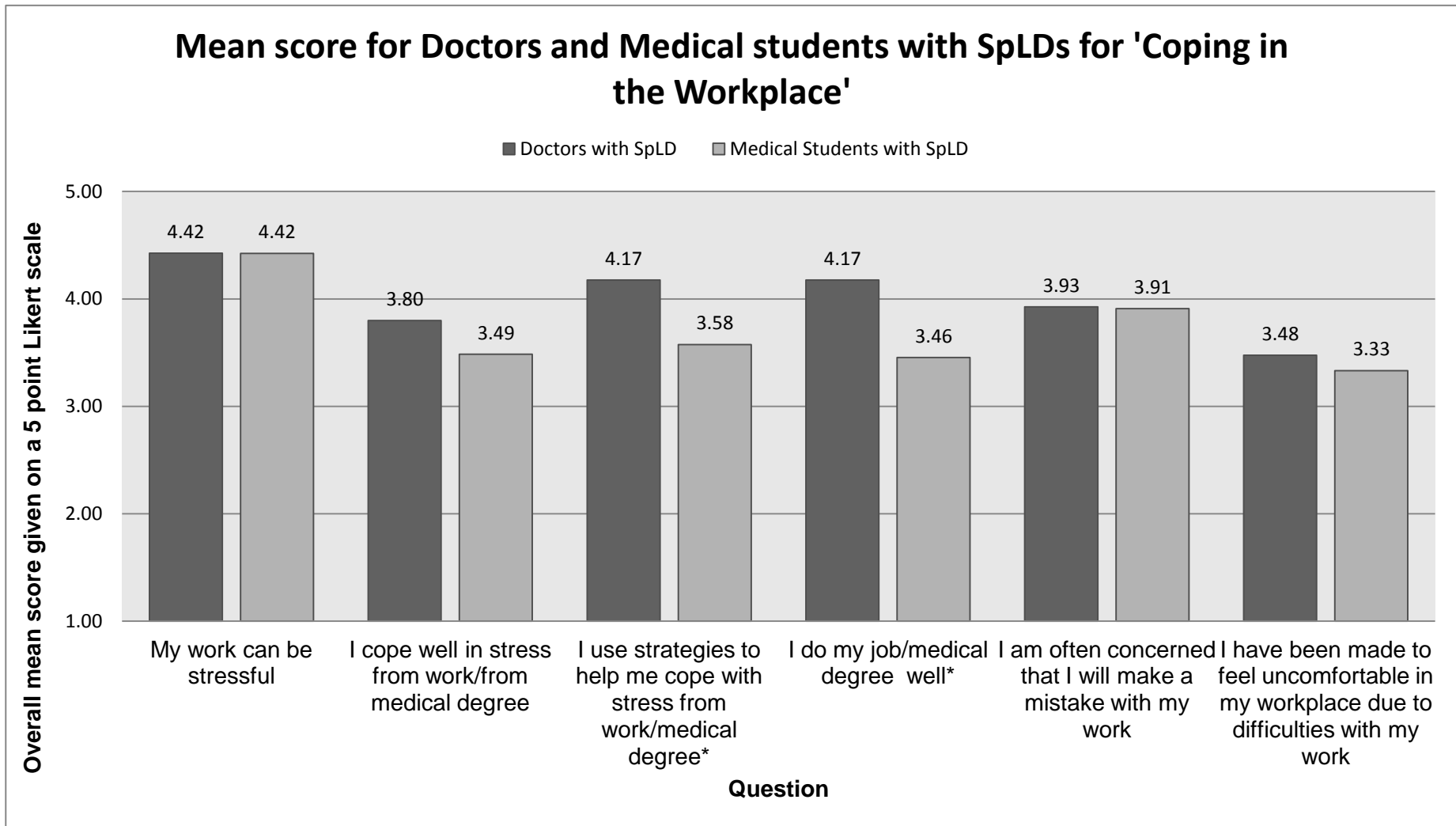
Figure 6: Mean score for doctors and medical students with SpLD for the 'Coping in the Workplace' section of the questionnaire

Key: * significant at p<0.05

      1=Strongly disagree, 2=Disagree, 3=Neither, 4=Agree, 5=Strongly agree

General and clinical skills

When comparing the results from the general skills section, medical students with SpLD rated their performance significantly lower than doctors with SpLD on 'Remembering information for long periods of time', 'Organising your workload', 'Reading comprehension' and 'Processing information that you have heard (Table 40).

General Skills	Doctors with SpLD		Student's with SpLD		Sig. (Mann Whitney U)
	Mean	SD	Mean	SD	
Remembering information for short periods of time	3.28	1.15	2.79	1.02	0.094
Remembering information for long periods of time	3.55	1.09	3.00	1.12	0.044*
Organising your workload	3.53	1.11	2.94	0.90	0.013*
Overall spelling ability	2.70	1.265	2.52	1.20	0.490
Writing by hand	2.75	1.13	3.06	0.93	0.273
Writing legibility	2.78	1.12	3.15	0.97	0.148
Typing on a computer	3.30	1.20	3.64	0.86	0.252
Reading	3.16	1.28	3.21	1.22	0.995
Reading comprehension	3.58	1.11	3.12	1.19	0.046*
Processing information that you have heard	3.53	1.15	2.70	1.33	0.007*
Processing visual information	4.00	0.88	3.61	1.06	0.101
Expressing your thoughts verbally	3.55	1.15	3.00	1.32	0.058
Expressing your thoughts in writing	3.25	1.15	2.79	1.17	0.109
Time management	3.30	1.11	2.97	0.98	0.105

Table 40: Mean scores for doctors and students with SpLD for general skills

Key: * significant at $p < 0.05$ SD=Standard deviation

      1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Very good

Work related Skills	Doctors with SpLD		Students with SpLD		Sig. (Mann Whitney U)
	Mean	SD	Mean	SD	
Completing clinical examinations	3.80	1.09	4.12	0.60	0.267
Diagnostic skills during consultation	4.03	1.15	3.85	0.67	0.069
Prescribing medication	3.73	1.18	3.24	0.90	0.007*
Record keeping	3.58	1.01	3.36	0.99	0.472
Practical clinical skills	3.70	1.31	3.85	0.71	0.757
Taking patient information	3.95	1.18	4.24	0.56	0.466
Team working & relationships with staff	4.05	1.09	4.27	0.67	0.599
Being aware of your limitations	4.18	0.71	4.09	0.72	0.558
Responding effectively to emergencies	3.88	0.79	3.30	1.40	0.183
Following safe procedures	3.95	1.15	4.09	0.52	0.896
Being responsible for your own learning	3.95	0.85	3.94	0.70	0.967
Discussing treatment options, including relative risks and benefits, with patients	3.88	1.16	3.33	1.29	0.023*
Explaining medicines to patients	3.78	1.17	3.18	1.40	0.038*
Completing drug calculations	3.30	1.38	2.61	1.32	0.020*
Communicating with patient's family/carers	4.06	1.10	3.52	1.66	0.181
Communicating with patients	4.18	1.13	4.18	0.58	0.295
Communicating with peers	4.00	0.78	4.00	0.75	0.932
Communicating in writing with colleagues	3.15	1.23	3.30	0.85	0.662
Understanding medical ethical principles, including confidentiality	4.43	0.64	4.21	0.70	0.185
Ability to deal with own stress	3.48	0.93	3.36	0.86	0.425
Coping with responsibility	4.13	0.79	3.82	0.69	0.042*
Coping with uncertainty	3.80	0.91	3.27	0.98	0.022*
Working independently	4.26	0.70	3.91	0.72	0.049*
Being empathetic	4.33	0.73	4.33	0.65	0.897
Supporting patients & colleagues	4.30	0.56	4.09	0.95	0.438

Table 41: Mean scores for doctors and students with SpLD for clinical skills

Key: * significant at p<0.05   SD=Standard deviation

1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Very good

The results from both groups have also been compared on 23 of the clinical skills tasks that both groups were asked to rate (Table 41). There were significant differences noted on 7 out of these 23 skills in which the doctors rated their performance as significantly higher (see Figure 7). To note, the wording of some of these skills was slightly different on the doctors' and the medical students' questionnaires and only when directly related have the skills been compared (i.e. 'Completing clinical examinations' for doctors and 'Examining patients' for medical students have been compared).
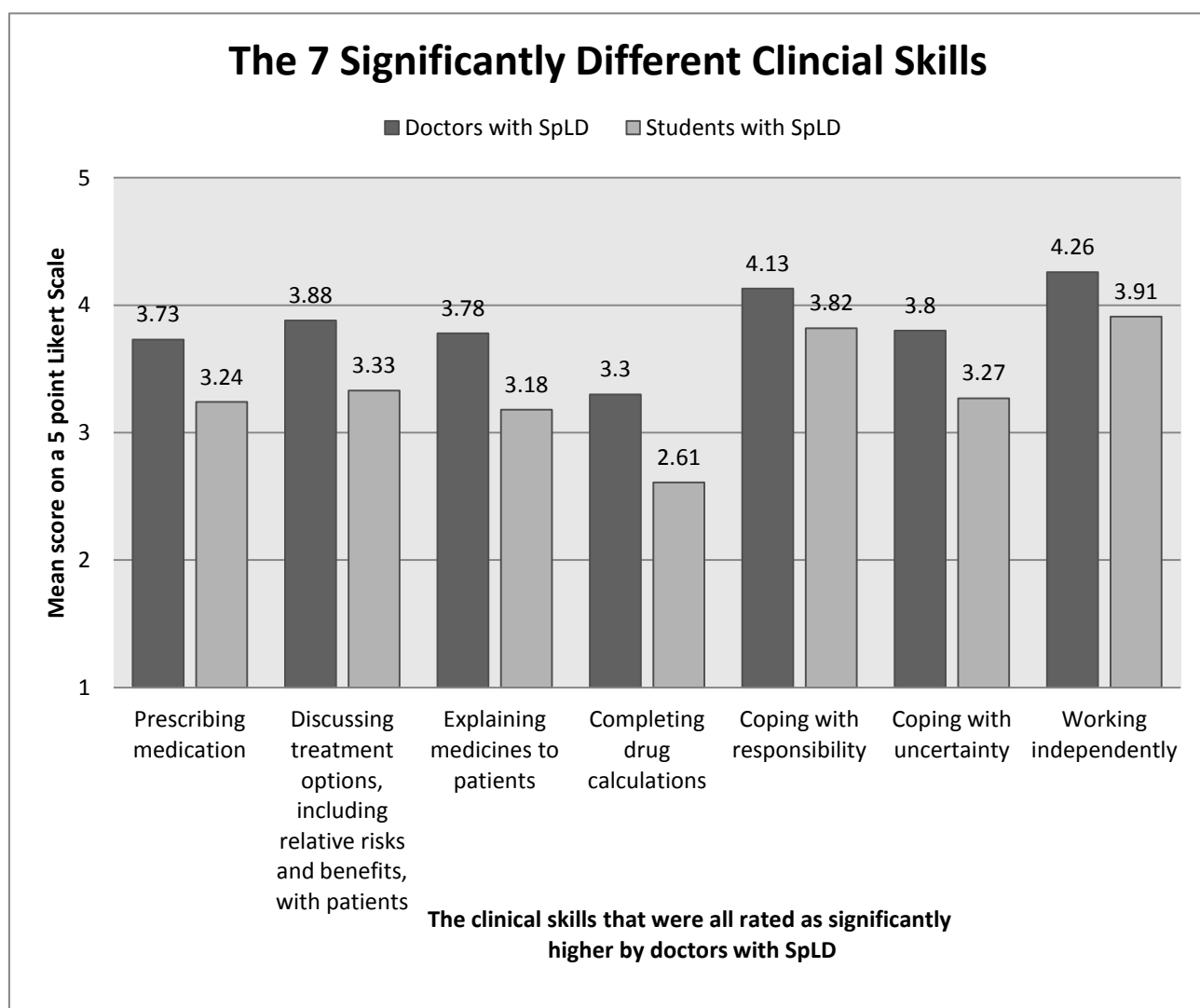
Figure 7: The mean scores of the 7 clinical skills that doctors with SpLD rated their performance as significantly higher when compared to the mean score ratings from students with SpLD

Perceptions

This section of the questionnaire concerned participants' perceptions of doctors with SpLD, covering disclosure and how other people might react to having doctors with SpLD. For this section there were no significant differences found between the results from doctor and medical students on the 10 items asked in both questionnaires. Significantly more doctors reported knowing another doctor with SpLD compared to medical students (Table 42).

	Doctor SpLD		Medical student SpLD		Sig. (X^2, Chi squared)
	Number	%	Number	%	
I currently know doctors with SpLD					
Yes	35	87.5%	19	42.4%	0.004*
No	5	12.5%	14	57.6%	

Table 42: Number (%) of participants who knew a doctor with SpLD

Key: * significant at p<0.05

Support

There were also no differences found in the results for 'issues raised due to poor performance' and the reported use of informal strategies between the doctors and the students. The doctors did rated their current coping level in their job as significantly higher than medical students coping with their medical degree (p=0.022).

When asked to indicate which (from a provided list) types of assistive software they used a higher percentage of medical students reported using mind mapping software, text to speech software/screen reader and voice activated software than doctors (see Figure 8). Spell-checks had the highest reported use from both groups; however doctors with SpLD did report a higher use of spell-check.
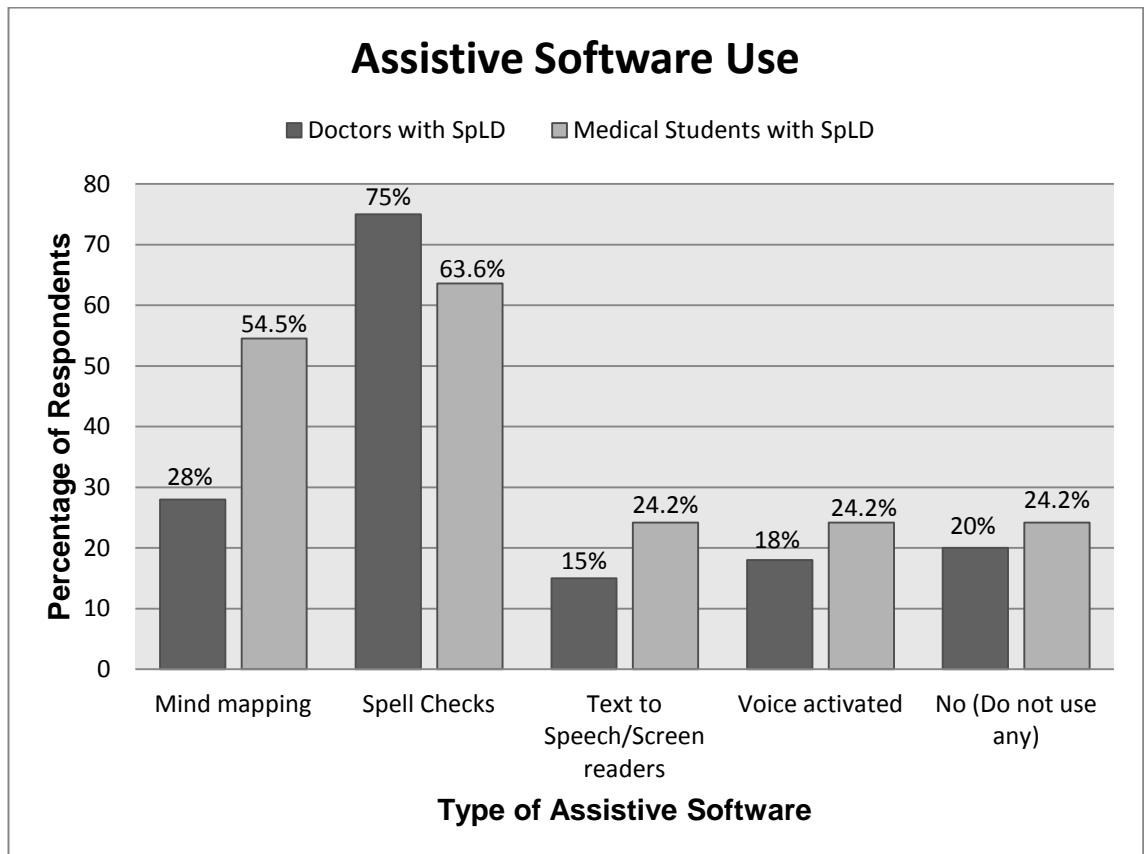
Figure 8: Doctors and students with SpLD use of assistive software

Career

Both medical students and doctors were asked to rate how important the same list of 8 potentially influencing career factors were to them. Doctors with SpLD rated 'personal preferences', 'specialty characteristics' and 'intellectual content of specialty' as significantly more important than medical students in relation to influencing their career choices. Although medical students rated 'lifestyle after completing training' as significantly more important than doctors (see Figure 9).
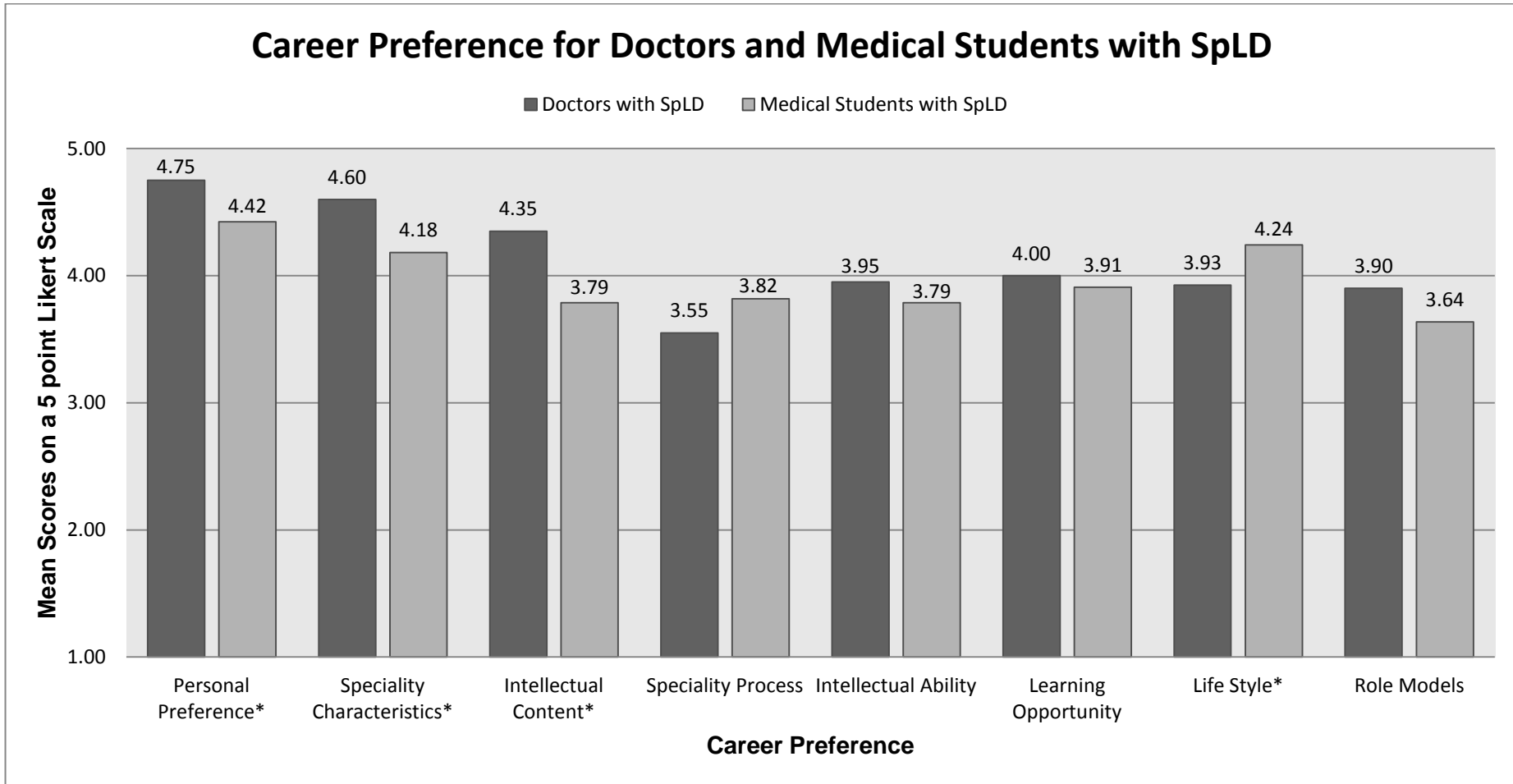
Figure 9: Mean scores for doctors and medical students with SpLD for career influencing factors or preferences

Key: * significant at p<0.05   SD=Standard deviation
          1 = Very important negatively, 2 = Important negatively, 3 = Unimportant, 4 = Important positively, 5 = Very important
          positively

Impact of SpLD

Medical students with SpLD reported a significantly higher impact of SpLD on their medical course when compared to how the doctors rated the impact of their SpLD on the current work position. There was no difference between the 2 groups in how they rated the impact of SpLD on their overall life with the mean score for both groups being around 3 which is equivalent to the 'sometimes' option (Table 43).

	Doctors with SpLD		Students with SpLD		Sig. (Mann Whitney U)
	Mean	SD	Mean	SD	
Does having SpLD impact on your overall life?	2.97	1.08	3.19	1.03	0.380
Does having SpLD impact on your current work position/medical course?	2.74	1.20	3.63	0.83	0.001*
Do you try to avoid certain aspects of your work because of having SpLD?	2.71	1.23	2.42	1.20	0.282

Table 43: Mean scores for doctors and medical students with SpLD for statements concerning perceptions of doctors

Key: * significant at $p<0.05$ SD=Standard deviation
     1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always

When ratings of impact of SpLD were compared between doctors and medical students there were no significant differences found between the scores.

Disclosure

When asked who the doctors and medical students had disclosed their SpLD to, most had disclosed to family and friends. In relation to telling patients that they had SpLD 37.5% of doctors said that they would sometimes tell patients, where 90.90% of medical students said that they would not tell a patient about their SpLD.

Discussion

Being part of a world that associates educational success with literacy can frequently make life challenging for those with SpLD (McNulty, 2003). The results overall indicated that medical students with SpLD are experiencing some difficulties or barriers to success whilst they complete their medical degree, but that they are trying to overcome these using coping strategies. When completing their medical degree it appeared that both sets of students, those with and without SpLD, felt that their medical school environment was more stressful and competitive than their clinical placements. This could be due to the fact that during their time at university the students are being summatively assessed, whereas when they are on clinical placements they are not (although, they are being assessed for professionalism and fitness to practise).

Medical students are now ranked as part of the process of gaining entry onto the Foundation Programme. This is a two year training programme which newly graduated doctors complete to give them greater medical experience before they go on to choose a specialty (GMC, 2013b). As part of the application process for this programme, during medical school students are given an Educational Performance Measure (EPM) decile score that is calculated using, for example, summative assessments, attendance and scores for professionalism (each medical school has their own measures for the EPM). All students are ranked by their medical school based on the measures, and then assigned an EPM decile score based on the ranking. Medical students are awarded extra points for additional degrees and publications based on information provided in their application form. Students also have to complete a Situational Judgement Test (SJT), which is used to assess medical students' integrity and ability to understand real world situations as future doctors. These tests are marked nationally and the results are then combined with their EPM score to give students an overall application score that is then ranked. Students are allocated to a Foundation Programme position based on score order (UKFPO, 2013).

This could account for why medical students are finding their university environment stressful and competitive. Sharma (2012) explained how due to this system of scoring, medical students are now facing tougher competition than previous students to secure a foundation job. Also there are currently more medical student applications for a

position on the Foundation Programme than there are vacancies available, increasing the competition to be one of the 'top scoring applicants' in order to be allocated a position (UKFPO, 2013).

Research involving nurses with SpLD suggested that they might cope more successfully in clinical environments as opposed to university situations (Sanderson-Mann and McCandles, 2005) due to clinical environments being more active and involving more kinaesthetic learning style (Kolanko, 2003); which may also explain why medical students find the clinical environment less stressful and competitive. The BMA (2013a) also suggests that students with dyslexia may find being in a clinical setting plays to their strengths, such as being lateral thinkers, creative problem solvers, good verbal communicators and hands on learners. However difficulties such as poor time management, poor spatial awareness and being disorganised are often experienced by those with SpLD, which could have negative consequences on clinical performance (Gibson and Leinster, 2011). In Study 1 and Study 2 of this project the doctors reported finding their clinical work very stressful but this could be because they are qualified and so are directly responsible for their patients whereas in contrast medical students are supervised throughout their clinical work.

Stress is often higher in medical students during training and in a study by Radcliffe and Lester (2003) students described being in direct competition with their peers as extremely stressful. Previous research has also found that 'competition rather than cooperation' was a defining characteristic of medical schools (Lempp and Seale, 2004). Studies with medical students have also found that stress levels double during their final exam periods, which was suggested to be caused by an overload of content and not enough time in which to revise (Yusoff et al., 2011). Students with learning difficulties have also been found to experience higher levels of stress, frustration, helplessness or nervousness when completing exams than students without a learning difficulty (Heiman and Precel, 2003). This could have an increased impact on those students with SpLD who experience difficulties with processing speed, causing difficulties with processing information and revising. This said, the results from this study showed no difference between the students with and without SpLD in the scores given for the statements regarding coping with stress.

Lempp and Seale (2004) found that medical students (regardless of having SpLD) reported incidents of humiliation, typically by male doctors, when on ward rounds or completing clinical examinations. They also found that medical students reported disrespectful treatment from midwives and nurses; this was thought to perhaps be an indication of professional rivalry. Such reports of bad experiences amongst all medical students may be exacerbated in students with SpLD, as those individuals with SpLD have been found to be sensitive to, and disturbed by, criticism and self doubt (Edwards, 1994; Hales, 1995). This could account for why medical students with SpLD were significantly more likely to agree that they had been made to feel uncomfortable at university due to difficulties with their work than those students without SpLD. Medical students with SpLD could have previously coped successfully with their work, but are now beginning to experience difficulties which could also affect their self confidence and make them feel uncomfortable at university. This could also be the first time that the students have used support for their SpLD difficulties. As the doctors in Study 2 reported, taking some of the support on offer at medical school makes their once hidden disability visible to others. If some students are seen to be getting different treatment to other students then, in such a competitive environment, this could lead those receiving support feeling uncomfortable or possibly stigmatised.

Students with SpLD reported that more issues had been raised in relation to their university work, but not their clinical work, potentially indicating that medical students with SpLD are struggling more in academic environments. This again could be due to the difference in assessments style and requirements between university work and clinical placements. As their university work would probably involve higher volumes of written work (than their clinical) this is to be expected, given that the students with SpLD rated spelling and expressing their thoughts in writing as some of their lowest skills. Their university work may also involve other more academic based skills, such as structuring essays and processing auditory information during lectures, which those with SpLD would potentially find more problematic than those without SpLD.

It is possible that students perceive that they are performing better on clinical placements as a result of issues with mentors and placements tutors 'failing to fail' students. Previous research has suggested that 'clinical assessments do not always accurately reflect student performance' (Cleland et al., 2008, p800). Suggested reasons as to why tutors may 'fail to fail' students or not report students' difficulties

include the tutor's relationship with the students; tutors did not want to be seen to be biased towards a student they disliked by failing them but also did not want to fail the students they liked. Also tutors were less likely to fail students when the student had a committed attitude to their studies, and tutors wanted to avoid confrontation with a student if they did fail them (Cleland et al., 2008). Further research with nursing students' placement mentors (Gainsbury, 2010) found that mentors had passed poorly performing students because they were not confident in managing poor performance, it created more paperwork for them and it was emotionally difficult to fail a student. Therefore this suggests that just because the medical students in this study reported that fewer issues have been raised with their clinical work, this could in fact be due to an underreporting of performance issues.

When looking at the results for the rated skills involved in the clinical and university environment, the results reflect a similar pattern to the results found from doctors in Study 1. Doctors with SpLD rated themselves significantly lower than doctors without SpLD on the majority of the general skills listed but such a difference was only found for a couple of the clinical skills. Likewise, medical students with SpLD scored themselves significantly lower than students without SpLD on all except one of the general skills listed but only 1 significant difference found was found on the clinical skills out of 27. These results could reflect the reason why students with SpLD find university more stressful than the clinical environment, as the everyday skills that they rated their performance lower on are more connected with tasks involved with work in university. This again could indicate that medical students with SpLD function better in the clinical environment. Also, similar to the results for the doctors in Study 1, the clinical tasks were more specific and the students may have had a better understanding of the level to which they are meant to meet these skills, whereas the everyday skills were slightly more ambiguous and open to interpretation.

The only clinical skill where a significant difference was found was 'communicating in writing', where those with SpLD scored themselves significantly lower than those without SpLD. Price (2006) argued that in today's society, professional and academic achievement are dependent on a person's ability to communicate successfully in writing and therefore the difficulties experienced by those with SpLD in relation to writing could impact upon their achievements. General skills related to spelling were the lowest rated everyday skills ('spelling drug name', 'spelling of medical terms' and

'general overall spelling') in this study for medical students with SpLD; this could impact on many aspects of university work. This again provides a potential reason as to why the university environment was perceived to be more stressful. Gibson and Leinster (2011) found that medical students with SpLD achieved poor marks in OSCE examinations and attributed these low scores to difficulties on stations such as the prescribing skills and data interpretation stations, as they involved reading and writing.

Students with and without SpLD rated 'processing visual information' as one of their highest rated general skills. Visual skills are important for medical students and visual-spatial ability is an important skill when learning anatomy and surgical procedures (Wanzel et al., 2002). The findings for students with SpLD are in line with Bacon and Bennet (2013) who reported that individuals with dyslexia have a propensity for visual thinking and creativity. When examining the individual mean scores for the clinical skills, 'being empathetic' was the highest rated skill for those with SpLD, followed closely by 'team working and relationships with staff'. Studies with student nurses with dyslexia have also found empathy and understanding to be particular personality strength of those with dyslexia (Sanderson-Mann and McCandles, 2006; Morris and Turnbull, 2007a).

For clinical skills 'completing drug calculations' was the lowest rated skill by medical students with and without SpLD and was the only skill to get a rating equivalent to 'poor'. Nursing students with dyslexia have also reported difficulties with drug calculations (Illingworth, 2005; Morris and Turnbull, 2006; White, 2007) and a study by Sanderson-Mann et al. (2012) found that all nurses, irrelevant of whether they had dyslexia, found drug calculations difficult. This could suggest that a larger focus is needed in both medical and nursing education to ensure that students are more confident in completing drug calculations.

Support

It is of great importance that medical students with SpLD are supported early in their studies to enable them to maximise their potential (Majumder et al., 2010), to learn and become successful doctors. Walters and Croen (1993) noted significant improvements in how medical students with learning disabilities performed once they were aware of their disability and were provided with the appropriate support.

In this study both medical students with and without SpLD agreed that 'medical students with SpLD should be given support during medical school if needed'. Majumder et al. (2010) discussed that some people were concerned that allowing adjustments for medical students during medical school could give students with SpLD an advantage over those medical students who do not have SpLD and thus have no adjustments in place. This type of concerns could lead to those students being provided with support being stigmatised. However evidence indicates that these worries are unjustified (Rosebraugh, 2000; Majumder et al., 2010) as it has been shown that although additional time helps those with SpLD to improve their performance in examinations, it does not significantly change the results for students without SpLD. Previous research has suggested that there are concerns that some students could be falsifying their SpLD in order to gain additional support or educational adjustments (Majumder et al., 2010; Gibson and Leinster, 2011) although there is no research to support this notion. In a study by Miller et al. (2009) some medical students commented that they thought that although some supports/adjustments would be useful when in the university environment, such as additional time in exams, these type of adjustments would not be viable when in the clinical environment. The students therefore felt they were not appropriate adjustments as they did not prepare them for work once qualified (Miller et al., 2009).

The type of support suitable for a medical student with SpLD depends on the individual, the level and impact of their SpLD, and also on the type of medical course they are completing. For those students with SpLD on a course with a more traditional structure, digital recorder devices and prior access to copies of the lecture notes may help deal with the more lecture based aspects. Support with organisational skills, time management and independent study skills maybe more suited to medical students on problem based learning style medical degree (BMA, 2013a).

There are various types of support that that are available to medical students with SpLD such as specialist equipment including computer equipment, assistive software, digital voice recorders. A large proportion of the medical students with SpLD in this study did report using assistive software such as mind mapping software, screen readers, and voice activated software to support their studies. This is in contrast to the doctors who reported that they found using assistive software limiting due to the nature

of the clinical environment. Students with SpLD also reported using visual aids to help with their learning. Murphy (2010) also found that the strategies used by radiography students with dyslexia, had a strong visual emphasis, such as using online resources.

Possible course adjustments such as extra time during examinations, taking exams in a suitable environment, copies of lecture notes, stickers to place on exams papers so that the examiner knows it was completed by someone with SpLD and extended library loans are all examples of support suitable for someone with SpLD. Students with SpLD may also attend additional study skills support and tutoring. Of the medical students with SpLD in this study, nearly half of them had sought help or support from their medical school and reported that they actually used the support that was offered to them. Those students that had not sought support described fears of being judged and being treated differently, or previous support being inadequate, while some explained that they did not know support was available. Previous results from doctors in Study 2 also suggested that whilst at medical school using the support that was provided took away their options of disclosure, as using the equipment or having the adjustments made their hidden disability visible to others and therefore made them 'different' when compared to their fellow medical students. A study by Carroll and Iles (2006) found that the majority of students with dyslexia thought that universities do not offer adequate emotional support for students and that the support facilities that they offer are often not advertised enough. Kong (2012) also found that many students in general higher education found support for students with SpLD provided by universities to be insufficient and that there was a lack of guidance about where to seek support from.

Some medical students in this study explained, however, that they had already developed good coping strategies from their previous studies and consequently they felt they were coping well with the demands of medical school and that no further support was required. This may be due the increase in awareness of SpLD and to students having been diagnosed and labelled early enough to have been provided with appropriate support and adjustments throughout their pre-medical school education. However some studies have shown that the majority of medical students are diagnosed with SpLD once they have begun studying medicine, as their once sufficient coping strategies are now failing in such an intense environment (Rosebraugh, 2000).

Both medical students with and without SpLD reported using informal coping strategies to help with their clinical and university work. The types of informal strategies that the students with SpLD reported included methods to check the accuracy of their work, such as asking other students or tutors to check their work, or getting parents to check for spelling and grammatical mistakes, or repeatedly checking their own work for such mistakes. Dyslexic nursing students were also found to sometimes prefer to ask their family and friends to proof-read their work and also described checking their drug calculations many times (Sanderson-Mann et al., 2012). Using such informal strategies also enables impression management, as they give students slightly more control over their SpLD as students can hide some of their difficulties and these strategies give students the choice of whether to disclose their SpLD or not.

Other participants with SpLD also mentioned using support from learning enhancement tutors and mentors. Murphy (2008) found that a 'supportive and knowledgeable' mentor was a major asset to nursing students with dyslexia, Although the value of such mentors depends on them having a clear understanding of SpLD and knowledge about positive practical ways to support students (Child and Langford, 2011). The BMA suggests that medical students create a 'Buddy Scheme' where by older medical students help, guide, pass on experiences and support first year medical students through their course, giving students the opportunity to seek advice without having to go through formal university channels (BMA, 2013b). Creating support groups where nursing students with dyslexia could seek support and discuss coping strategies with their fellow students was also suggested as a key implementation to support students in previous research (Child and Langford, 2011). This would provide an environment where the students could discuss their issues freely without concerns about being judged or stigmatised.

Half the students with SpLD explained how since starting medical school, they had developed new coping strategies to help with processing information, concentration, revising and organisation. However strategies were not solely used by those students with SpLD, medical students without SpLD described using similar strategies (such as recoding lectures). This suggests that some of the difficulties experienced by medical students are not just specific to those with SpLD. This also indicates that medical training can highlight the strengths and weaknesses in everyone's skill set. Perhaps, as Kahtan (1999) argued, doctors and by extension medical students should be viewed as

an individual with their own physical, psychological and social strengths and weaknesses. Adopting this view would enable a more realistic examination of individuals and would be more productive as opposed to labelling individuals as 'disabled' or 'normal' (Kahtan, 1999).

Career

When asked about future career influencing factors there was no difference between the two groups, with all students selecting 'personal preferences' as being the most important factor. 'Lifestyle after completing training' and 'specialty characteristics' followed this. Previous research by Chang et al. (2006) also found that 'lifestyle after completion of training' was one of the highest rated career influencing factors for medical students along with 'personal intelligence/ability preferences' and 'career opportunities'. Ko et al. (2007) found that personal interest was the highest factor influencing residency selection in Canadian medical students with 'mentors' having the lowest reported influence. In this study, both groups of medical students felt that 'role models' were the least important factor when thinking about their future career choices. However, Soethout et al. (2008) found that having a parent who was a general practitioner was strongly associated with a career preference for general practice for medical students.

The majority of both groups of students did not think there were areas of medicine that might be better suited to those with SpLD, although some students with SpLD suggested less acute and 'non-surgical specialties' might be preferable for those with SpLD due to perceived co-ordination difficulties. Slower paced and less intense working environments have also been suggested as better working environments for nurses with dyslexia (Morris and Turnbull, 2006).

Impacts of SpLD

The majority of medical students in this study had been diagnosed with dyslexia whilst at medical school, which has been found in previous research to be because previous compensatory coping strategies are no longer adequate to cope with the high volume of work and demand of medical school (Walters and Croen, 1993; Rosebraugh, 2000). Only 15% of the students considered themselves disabled because they had SpLD.

Precise reasons for this are not known and more research on this would be beneficial in the future. In a previous study Miller et al. (2009) found that medical students did not consider themselves disabled due to lack of knowledge about what exactly a 'disability' is defined as.

Most of the students reported that having SpLD had some impact on their life generally but it had a stronger impact on their medical course. The majority of students tried to avoid aspects of their course because of having SpLD related difficulties with tasks involving writing and reading. This is similar to the doctors in Study 1 and Study 2; like the doctors, the medical students also appeared to try and use impression management when completing tasks in front of other people. Some tasks, particularly scribing during PBL sessions, were avoided or disliked by the students due to concerns about making a mistake and showing that they have SpLD. This could be a result of their SpLD related difficulties being exacerbated by being in a stressful environment and having the additional pressure of having to complete tasks in front of their peers and tutors. For dyslexic student nurses difficulties such as writing patients notes and remembering information also increased when under pressure to complete them, resulting in avoidance strategies when having to write in front of people (White, 2007). Heiman & Kariv (2004) found that students with learning difficulties frequently described being emotionally exhausted, being too embarrassed to ask for help, and wanting to hide the fact of their dyslexia; this could account for why medical students in this study preferred to avoid certain tasks.

Disclosure

It has been argued that medical school applicants should be encouraged to disclose their SpLD (Murphy, 2008) as early as possible so that the medical school has the opportunity to provide appropriate support tailored to the individual's needs. If a student discloses that they have SpLD then it means that the university can provide appropriate academic adjustments and physical support for student to use and benefit from (Stampoltzis and Polychronopoulou, 2009). The General Medical Council (GMC, 2008) advises that potential students be invited to disclose their disability when applying for medical school and that the reasons for disclosing should be explained (i.e. to enable any suitable adjustments to be made). They suggest that it should also be emphasised that disclosing a disability will not have any effect on the decision of whether they are

successful in being offered a place on the course (GMC, 2008). The majority of participants who had been diagnosed before entering university had disclosed their SpLD when they applied for medical school. This could indicate that concerns over stigmas or discrimination against those with SpLD are reducing, as only a quarter of the doctors in Study 1 had disclosed their SpLD when they applied for their current position. This said, not all students disclosed when applying. Additionally, after getting into medical school the students did not necessarily disclose to staff or fellow students. Both medical students with and without SpLD agreed that a medical student with SpLD 'should' disclose it to their medical school. Some of the medical students in this study explained that they disclosed their SpLD so that they could get the right support that they required. This is one of the common arguments for labelling impairments such as SpLD as it enables individual to get access to the specialist support that they are entitled to (Riddick, 2000) and can also act a way of succinctly explaining their needs to others.

When asked about reasons behind their disclosure decisions many of the students described experiencing felt stigma. They gave quite negative reasons for deciding not to disclose, such as concerns that it would disadvantage them when applying to medical school or that they did not want to be thought of as a 'potentially difficult student'. Stampoltzis and Polychronopoulou (2009) described various influences on whether or not a student decided to disclose that they have SpLD, including not disclosing due to not wanting to be seen as 'different' from other students or because they thought they would not get support. Study 3 also found not 'wanting to be judged' or seen as different as reasons given why medical students with SpLD had not sought formal support from the university. This was also described by the doctors in Study 2 and it indicates that individuals with SpLD are experiencing felt stigma.

According to Morris and Turnbull (2007a) students will often make the decision of whether to disclose their disability or not based upon 'a balance between personal benefits and the emotional cost or risk to patient safety' (p39). A study by Mortimore and Crozier (2006) found that students were often concerned about other students' perceptions of dyslexia and did not want to be thought of as 'lacking intelligence'. The results from Study 3 also found that medical students with SpLD were inclined to agree that others would judge them for having SpLD. Mortimore and Crozier (2006) additionally reported that stigmas associated with dyslexia often influenced whether

support was sought and led to stress and anxieties about disclosing to tutors and other members of academic staff. Most of the medical students in Study 3 had disclosed their SpLD to a member of staff at their medical school, although they were much less likely to disclose to clinical teaching staff at their clinical placements. This relates to the previously described results, where those medical students with SpLD rated their performance higher when completing clinical tasks and therefore they may not feel the need to disclose their SpLD when on clinical placements as they feel they do not need the support. On the other hand the students could have concerns about their clinical and professional reputation being tarnished due to discrimination and stigmas. If medical students disclose their SpLD in the clinical environment they are no longer in the potentially more accepting education environment and they now have to live up to the stereotypical 'perfect' doctor. Student nurses with dyslexia found the thought of disclosing their dyslexia when on clinical placements as 'potentially threatening and stressful' (Morris and Turnbull, 2007a, p38).

Working as a doctor

Both groups of medical students did not have concerns about working with a doctor who had SpLD and felt that if needed it was appropriate for a doctor with SpLD to use support strategies in the workplace. They also felt that having SpLD would not stop someone from becoming a successful doctor. However more students without SpLD thought that a person with SpLD should disclose their SpLD to the NHS when applying for jobs, compared to medical students with SpLD. This may be due to medical students without SpLD lacking understanding about disability legislation or of the implications of having SpLD and the other more psychological effects that it can have on a person, such as lower self confidence and self esteem (Ridley, 2011). The effects of this can also be seen in that those students with SpLD were significantly more inclined to disagree that 'a doctor with SpLD should tell their colleagues that they have SpLD'.

Interestingly though both groups of students were more inclined to disagree that 'a doctor with SpLD should tell their patients that they have SpLD', although most thought that patients would not be concerned about being treated by a doctors with SpLD. Also only a small number of medical students had actually disclosed to their patients. Whether this is because they deemed it personal information and therefore

unprofessional to tell patients or whether they were concerned about how patients would react is unknown. Alternatively, they could still be working out the boundaries of professional practice in relation to communicating with patients, so they do not yet know whether disclosing to patients would be appropriate.

Doctors and medical students with SpLD

The results from Study 1 with doctors with SpLD were compared with the results from medical students with SpLD (Study 3). Many of the doctors and medical students had been diagnosed whilst attending university, and felt that they currently had a 'moderate' level of dyslexia.

Differences noted were that doctors with SpLD indicated higher use of strategies to help cope with stress caused by their work and they were more likely to agree that they did their job well in comparison to how students felt they were doing on their medical degree. This is probably accounted for by the doctors having more experience and being more familiar with their work in order to create successful strategies. This said, both groups agreed strongly that their work/university work was stressful and agreed that they were concerned about making errors in their work. The doctors rated their performance significantly higher on only 7 of 25 clinical skills, when compared to the scores from the medical students. It may have been expected that the doctors would have rated themselves higher on more tasks as these skills are part of their everyday job whereas medical students are still in the process of learning. For example, the doctors rated their performance as higher than the students regarding coping with responsibility, uncertainty and working independently. At their stage of training students will not yet be fully responsible for patients or working completely independently, thus it is unsurprising that they are less positive about their skills in these areas at this time. Alternatively, this finding could be due to the doctors having a more accurate view of their skills as they have been using them more frequently and have experience to base their rating on.

Overall though, there were more similarities between the medical students and the doctors with SpLD than differences. For example, the highest rated clinical skill for medical students with SpLD was 'being empathic' which was one of the highest scores for doctors with SpLD too. Empathy is a skill that is considered to be a significant factor

in the achieving a high quality doctor–patient relationship and therefore is a positive skill to have (Hojat et al., 2002). In addition to there being relatively few areas of difference regarding the clinical skills, there were only 4 areas where the doctors with SpLD rated their general skills as higher than the student group. For all of these areas, except processing visual information, both doctors and students rated their performance as average to poor.

Both groups felt that having SpLD sometimes impacted on their overall life, however medical students with SpLD reported a significantly higher impact of SpLD on their medical course when compared to how the doctors rated the impact of their SpLD on the current work position. As previously discussed, this could indicate that the skills associated with academic work and the academic environment are difficult for those with SpLD, and that they are less affected by their SpLD in the clinical environment. It could also be due to experience, with the doctors being more experienced at dealing with their SpLD in their work.

Conclusion

The results for this Study 3 reject the hypothesis that 'having a specific learning difficulty will not have an impact on views of medical students regarding their coping as a medical student in a clinical and educational setting'. The results have shown that medical students with and without SpLD are feeling the stress and competitive effects of being in an academic environment, with clinical placements found to be less stressful and competitive. Although students with SpLD do seem to be coping, a significant number of difficulties were experienced with general skills when compared to those students without a SpLD. Tasks involving writing and completing tasks in front of others seemed to be the main issues for medical students with SpLD.

Coping strategies were used by both groups of students although those students with SpLD reported hiding their SpLD and avoiding aspects of their course due to their SpLD, fearing others will judge them because they have a SpLD.

SpLD do appear to be impacting upon the lives of medical students when they are completing their medical degrees. Comparing the results with the doctors from Study 1 has shown that doctors seemed to be coping better with the effects of their SpLD on

their work. This suggests that maybe once qualified and getting increasingly used to working as a doctor, medical students might feel less pressure and stress which in turn may lead to their SpLD related difficulties not being exacerbated by stress.

The next chapter continues on to discuss these results in relation to the findings of the Study 1 and Study 2 and the overall results of this PhD thesis.

Chapter 9

THESIS DISCUSSION

The previous three chapters have discussed the procedures used for each of the research studies, the research findings and how these relate to current literature. This final chapter outlines and combines the findings from all of the studies and relates these back to the original project aims, set out in Chapter 4. It also discusses the implications of the project's results for medical education and practicing doctors, the project's limitations, areas of future research and provides a final project conclusion.

Previous research on the impact of specific learning difficulties (SpLD) on healthcare professions has focused primarily on nurses, both qualified and students, with SpLD. This is the first project of its kind to include qualified medical doctors of all ages and to specifically focus on the effects of SpLD on their work. This project moved beyond the previous limited literature about doctors with SpLD, in that the majority of this was secondary research or SpLD was not the main focus. This project involved primary research, with the sample taken from across the UK from a range of different specialties, hospitals and organizations in Studies 1 and 2 which enables the findings to be generalisable to a wider setting. This study was also the first to include both medical doctors with SpLD or suspected SpLD and doctors without SpLD, enabling comparisons to establish if any of the findings from doctors with SpLD were specific to that group or applicable to all doctors irrelevant of whether they had SpLD. Additionally, results from the doctors with SpLD were compared with data from a study with medical students with SpLD (Study 3) to establish similarities or differences between qualified doctors and those still in undergraduate training.

The overall aim of this project was to develop an understanding of how doctors with SpLD are coping in the workplace. In order to do this a number of more specific aims were developed which were addressed via Study 1, an electronic questionnaire completed by doctors with and without SpLD throughout the UK (Chapter 6) and Study 2 telephone semi-structured interviews completed with 11 doctors with SpLD (Chapter 7).

The preliminarily results from Studies 1 and 2 indicated that doctors are affected by SpLD, particularly those who are less established in their career. This suggested that medical students could be particularly vulnerable to the effects of SpLD. This led on to the experiences of medical students being explored (Study 3) via an electronic questionnaire (similar to the one used in Study 1). A summary of the key findings from this overall project are discussed below in relation to the different career stages of medical doctors. The implication of the findings and suggestions for future research are discussed separately below.

Experiences with SpLD: From medical school to qualified practice

Becoming a Doctor – Medical School

For individuals with SpLD wanting to become a doctor, the results from this project indicate that they could be affected in different ways during the different stages of their training and career by both internal and external factors including stigmatisation, confidence in themselves, their clinical environment and relationships with staff and patients and previous experiences with disclosing their SpLD.

The first stage in becoming a doctor is to gain admission into a medical school, where competition for places is high. This is often the start of what can be a competitive and stressful journey of their medical career. This is when those with SpLD will face potentially their first SpLD-related consideration surrounding whether to disclose their SpLD on their medical school application. During Study 3 most medical students with prior knowledge of their SpLD had disclosed their SpLD when they applied for medical school, with some choosing to disclose so they could get the needed support. During this study both students with and without SpLD felt that medical students with SpLD should tell their medical school, however those with SpLD described disclosing as a negative experience, stating fear of discrimination when applying to medical school and not wanting to be thought of as different, which also effected how students felt about seeking support. Stampoltzis and Polychronopoulou (2009) also found that students with SpLD did not disclose due to not wanting to be seen as 'different' from other students or because they thought they would not get support.

Study 3 showed that the majority of students with SpLD were diagnosed whilst at medical school. Some have reasoned that gaining a diagnosis of SpLD at this time is because the increase in academic pressure weakens students' current coping strategies, thus exposing their weaknesses (Walters and Croen, 1993; Rosebraugh, 2000). A positive aspect for students gaining a label of SpLD was that it resulted in them being eligible for additional support. But this did not stop others fearing that the label may result in them being stigmatised.

The medical students reported that having SpLD had had an impact on them in their everyday life and a strong impact on their experiences with their medical course, although most did not consider themselves disabled. These findings are supported by research with student nurses with dyslexia, where despite acknowledging that dyslexia had an impact of their lives, they did not consider their dyslexia to be a disability or that they were disabled (Morris and Turnbull, 2006). This was mirrored by the findings from the doctors in Study 1 and 2, who also did not consider themselves to be disabled as they did not consider their symptoms to be severe enough (this is discussed further below). The exact reasons why medical students did not class having SpLD as a disability is unknown and further research is necessary to establish this.

Another disclosure issue medical students with SpLD will face when attending medical school is who within their medical school/clinical placements to disclose their SpLD to. The medical students with SpLD in Study 3 were more likely to disclose to staff at university as opposed to their clinical placement tutors, probably because the students need more support whilst in the university environment with exams and assessments and they may not need the same support when on clinical placements. However during the interviews with doctors in Study 2, they highlighted the fact that during medical school using support and equipment resulted in their SpLD being rather obvious to others and therefore the doctors found that they had to disclose their SpLD in order to explain these. One consequence of receiving support was that it appeared to take away some of the control that individuals had in relation to 'impression management' (attempt to control the impression others make of them) and also regarding whether they wanted to disclose or not. Mortimore and Crozier (2006) also reported that stigmas associated with dyslexia often influenced whether support was sought.

Whilst attending medical school the medical students with SpLD appeared to have difficulties with all aspects of spelling including medical terms, medication names and general spelling especially when compared to medical students without SpLD. These difficulties could be impacting on the students' university work. Gibson and Leinster (2011) related low scores in OSCE examination from medical students with SpLD to difficulties on the stations involving writing and reading. Completing drug calculations was the lowest rated skill by all the medical students in Study 3, regardless of whether they had SpLD. Difficulties with drug calculations have also been frequently noted in studies involving nurses and nursing students with dyslexia (Illingworth, 2005; Morris and Turnbull, 2006; White, 2007, Sanderson-Mann et al.,2012). A larger focus on drug calculations within medical training is suggested below in the practical implications for medical education section.

The highest rated skills for medical students with SpLD were 'being empathic' and 'team working and relationships with staff'. As noted previously, empathy was found to be a strength for doctors with SpLD, and previous research has also found empathy skills to be a strength of healthcare professionals and students with dyslexia (Sanderson-Mann and McCandles, 2006; Morris and Turnbull, 2007a). The medical students with SpLD rated 'processing visual information' as their highest rated general skill. However these skills were also rated highly by medical students without SpLD. This could be due to the style (Problem Based Learning, PBL) of the particular medical course the students were studying being suited to visual strengths, and also such a course teaching communication and empathy skills successfully.

Adjusting to university life can be stressful for any new students (Gall et al., 2000) and the medical students reported finding their university environment more stressful and competitive and that more issues with their performance had been raised at university in contrast to their clinical placements. A proportion of these findings are probably due to the assessments of students when at university, however previous studies have suggested that those with SpLD adapt better to (Sanderson-Mann and McCandles, 2006); and perform better in, the clinical environment (Kolanko, 2003). This may also be due to the academic environment involving higher levels of written work and related skills that those with SpLD find particularly difficult. Also if the students receive support for these, then they may find it difficult to hide their use of such support from their peers.

Whilst completing their medical training, students are entitled to receive support for their SpLD and nearly half of the medical students with SpLD had sought help or support from their medical school and reported that they actually used the support offered to them. In contrast, a quarter of students reported that they did not use the support that was offered, potentially due to concerns about being judged and stigmas associated to having a SpLD. Some students had already established coping strategies and felt they were coping well, which may be due to being diagnosed earlier in their education enabling them to have support and established successful strategies to overcome any barriers faced. The types of coping strategies that the students with SpLD reported using included methods of checking their work for errors (often spelling and grammatical) either by themselves or others. Sanderson-Mann et al. (2012) also found that dyslexic student nurses sometimes preferred to ask friends and family for support with their written work. Other students with SpLD in Study 3 mentioned using support from learning enhancement tutors and mentors, which have been found to provide important positive support to healthcare students with dyslexia (Murphy, 2008; Child and Langford, 2011).

During their medical education the students did appear to be using impression management as a way of trying to manage the impression that they gave to their fellow students. An example of this can be seen in that the majority of students with SpLD reported avoiding aspects of their course involving writing and reading in front of other people, like scribing during PBL sessions, in case they made a mistake. Dyslexic nurses were also reported to avoid completing written tasks in front of others as this increased pressure and stress, and thus exacerbated their difficulties (White, 2007). However these apprehensions represent examples of felt stigma (internalised concerns about being devalued) as medical students both with and without SpLD did not have concerns about working with a doctor who had SpLD and felt that, if needed, it was appropriate for a doctor with SpLD to use support strategies in the workplace. All students also reported that having SpLD would not stop someone from becoming a successful doctor. However those students without SpLD felt a person should disclose their SpLD to the NHS when applying for jobs. Actual reasons for this are unknown however it could be that those without SpLD do not understand that for some people disclosing their SpLD is stressful and they fear discrimination.

Choosing a Specialty

Once graduated from medical school the newly qualified doctors go on to apply for a foundation placement before then choosing a medical specialty. When thinking about their future careers and specialties overall SpLD did not appear to influence the medical students' or doctors career choices and aspirations. The most influencing factors for all students were 'personal preferences' and 'lifestyle after completing training'. This is supported by Chang et al. (2006) who also found that for medical students 'lifestyle after completing training' was one of the most influential factors. Most students in Study 3 also reported that they did not think there were specialties that would be better suited to those with SpLD, although less acute and non surgical areas were mentioned by some. Less acute areas have also been suggested as areas to be avoided by dyslexic nursing students (Morris and Turnbull, 2006). Research by Morris and Turnbull (2007b) found that dyslexic nurses felt having dyslexia had not had an influence on the choice of work setting.

Study 1 found that more doctors with SpLD were in the specialty they thought they wanted to do when qualifying, when compared to doctors without SpLD, which may suggest that doctors with SpLD were showing strong self awareness regarding specialty preference or knowing what specialties were best suited to their strengths and/or weaknesses. When the doctors were asked about what factors had most influenced their career choice, the doctors with SpLD in Studies 1 and 2 stated 'personal preferences' followed by 'specialty characteristics' for Study 1 and lifestyle reasons for Study 2. Previous studies have also found that personal and family circumstances and 'quality of life' and 'job content' were all influences in career specialty choice amongst doctors (Lambert et al., 2003; Dornhorst et al., 2005). Some doctors in Studies 1 and 2, when explaining why they had chosen a particular field, often described basing it on previously mentioned strengths of SpLD; for example, having high patient contact and low levels of written work. This suggests that having SpLD potentially does have an underlying influence on career choice, even though individuals may not be aware of it.

During Study 1 a significantly higher proportion of doctors with SpLD thought that there were career specialties that would be better suited to a doctor with SpLD, compared to doctors without SpLD. When exploring this further in Study 2 areas where there is no

immediate stress or pressure, where there are minimal levels of written work involved and it is possible to dictate written work, but with high patient contact and practically based were suggested as suitable for doctors with SpLD. Again this relates directly to the strengths and difficulties reported by the doctors with SpLD. In Study 1 surgery was stated as a specialty that was avoided by the majority of doctors with and without SpLD, however surgical specialties and general practice were areas thought to be more suited to those with SpLD by all of the doctors. The doctors had come to this conclusion based on surgery being a practical specialty and that often those with SpLD are better at practical tasks.

Overall the doctors reported although there maybe specialties that are more suited to those with SpLD there was no speciality that would be unsuitable for a doctor with SpLD. Doctors concluded that speciality preference should be based upon their own interests and skills.

Working as a qualified doctor

Having decided on a career specialty and when applying for jobs, the doctors were again faced with issues over whether to disclose their SpLD and who too. Only a quarter of the doctors in Study 1 had disclosed their SpLD when applying for their job. Negative stigmas and fears of discrimination were the most significant influences on whether the doctors in Study 2 decided to disclose their SpLD. These also impacted on how the doctors felt about seeking support and also made some avoid tasks (as described below). Like the students, the doctors in Study 2 appeared to be apprehensive and concerned that disclosing their SpLD may make them appear weaker to colleagues, who were also their professional competition. The doctors explained that they often found their colleagues to be unsupportive and unsympathetic towards each other, which could be due to the competitive environment in which doctors' work and could be acting as a barrier to success for those doctors with SpLD.

Most studies involving dyslexic healthcare professionals have concluded that they are selective in whom they disclose their dyslexia to due to concerns about discrimination and negative stigmas and a lack of understanding in the medical profession (Illingworth, 2005; Morris and Turnbull, 2006; Ridley, 2011). During Study 1, a third of the doctors with SpLD thought that a member of staff would treat a doctor with SpLD

differently in the workplace; but over half of the doctors with SpLD reported that they did sometimes tell their colleagues about their SpLD, despite reporting that they thought they would be judged for it. Previous research has found that a positive relationship between colleagues is key when a person is deciding to disclose (Morris and Turnbull, 2007a). The doctors in Study 2 explained that when they had disclosed to people, their responses were often negative as others did not think that the skills and cognitive ability required of doctors was consistent with their stereotypical view of SpLD. Other research indicates that negative responses when people have disclosed their SpLD lead them to be cautious about whom they disclosed their SpLD to in the future (Sanderson-Mann et al., 2012). Issues surrounding disclosure where not all negative as some doctors in Study 2 described disclosing their SpLD for positive reasons. By disclosing to their colleagues and making colleagues aware of their difficulties they were able to use them as a way of error checking.

Some of the doctors seemed use disclosing their SpLD to patients, when appropriate, as a way of relating to, and building a successful and empathic rapport with them. Although overall the majority of the doctors tended to agree that a doctor with SpLD should not disclose to a patient. A study by Roberts et al. (2004) found that disabled doctors (who had both physical and mental disabilities) had concerns regarding if their disability may weaken patients' confidence in them. During Study 2 some of the doctors felt that they would tell a patient that they had SpLD only if the situation was relevant and appropriate. The results from Studies 1 and 2 showed that doctors with SpLD are concerned with other people's perceptions of SpLD and that they may be stigmatised because they have SpLD. The doctors with SpLD often referred to fears of discrimination and stigmas impacting on who they disclose to or whether they seek support. These fears could have developed from previous concerns about healthcare professionals being safe to practise, due to worries that someone with SpLD would have an increased potential to commit an error (Wright, 2000; Morgan and Chambers, 2004; Millward et al., 2005; Morris and Turnbull, 2007; Shrewsbury, 2012). However, overall the doctors without SpLD responded very similarly to those with SpLD, suggesting that the concerns of those doctors with SpLD about other doctors' perceptions may be unnecessary and that they are potentially feeling felt stigma and not enacted stigmas. Indeed, the majority of doctors without SpLD said that they would not be concerned about working with a doctor who had SpLD. However over a quarter of the participants with SpLD were concerned that others would judge them for having

SpLD. It would be interesting to explore this further in other key stakeholder groups to establish whether there are areas of misconception about working with doctors with SpLD that could be addressed.

Impact on practicing doctors

In relation to the overall impact of working as a doctor with SpLD, the doctors with SpLD in Study 1 reported that they felt their SpLD had at some level impacted on their everyday lives, but slightly lower levels of impact were scored in relation to the impact of their SpLD on their current work. Despite this impact, in both Studies 1 and 2, most doctors with SpLD did not consider themselves disabled. In both studies the doctors explained that this was because they were either managing their SpLD successfully or that they were not 'affected' enough when compared to the impact of other disabilities. This viewpoint is in line with the definition of disability used in the Equality Act (2010) in that a person is considered to be disabled if they 'have a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on your ability to do normal daily activities'. Most of the doctors did not consider themselves significantly affected enough in their work to 'qualify' themselves as disabled. This could also follow the relational model of disability where disability is where disability is considered not to be an always present essence of the person, but to be situational and the result of a mismatch or 'poor fit' between an individual and their capabilities and their environment or society (Tøssebro, 2004). Therefore if the doctors had chosen well suited specialties bases on their strengths and personal preferences, then there would be a 'good match' between themselves and their environment, preventing disability.

The doctors described a number of tasks that they found difficult in their work, however overall the main and most frequently reported difficulties experienced by doctors with SpLD related to written work; this is in line with the findings for the medical students with SpLD. In Study 1 the doctors with SpLD rated themselves significantly lower than doctors without SpLD on their 'overall spelling ability', 'writing by hand', 'writing legibility' and 'communicating with colleagues in writing'. During Study 2 the doctors with SpLD discussed how these difficulties with spelling affected all aspects of written work, reporting difficulties in spelling both medical terminology and general words. The doctors described often having to make a conscious effort to learn spellings, which accounted for why some found spelling less familiar general words more difficult than

complex medical terms that they used more frequently. Similar difficulties with written work and spelling have been reported for healthcare professionals and students with SpLD (Morris and Turnbull, 2006; White 2007; Crouch, 2008 & 2010; Sanderson-Mann et al., 2012).

Study 1 found that other difficulties experienced by doctors with SpLD included unprepared public speaking and reading large amounts of information. The doctors during the interviews in Study 2 expanded on these to also report poor organisation skills, and difficulties with orientation, expressing their thoughts verbally, processing information, short-term memory, reading comprehension and reading aloud. Previous research has noted that nurses and nursing students experienced difficulties with verbal communication, reading, short term memory, multitasking and concentration, which then led on to experiencing difficulties relating to these skills in clinical tasks (Morris and Turnbull, 2007b; White, 2007; Crouch, 2008). Appendix 20 shows the main difficulties reported by the doctors, the related impact on clinical tasks and the coping strategies that they used to overcome these difficulties.

In relation to the possible impact SpLD have on the doctors' clinical performance, the results for Study 1 showed that there was only one clinical skill where doctors with SpLD rated their performance as lower than doctors without SpLD, and this related to written work ('communicating in writing with colleagues'). In all other clinical work-related areas, both doctors with and without SpLD judged their performance to be similar. Murphy (2008) also found that the more practical elements of the clinical environment may be better suited to those with SpLD. This said, a significantly higher number of doctors with SpLD in Study 1 reported having issues raised in relation to errors or poor performance in work when compared to doctors without SpLD (possible reasons for this are discussed in Chapter 6). This could suggest that the clinical practice of doctors is affected by SpLD, however it is important to note that it is not known whether these reported errors or issues of poor performance were related to their SpLD as this was not asked; this could be an area of interest for future research. During Study 2 the doctors with SpLD reported that they had not completed any major errors in their work as a doctor; additionally there was no significant difference found between medical students with and without SpLD in relation to having issues with clinical skills being raised in relation to errors or poor performance. This could suggest

that medical schools are better preparing those students with SpLD for working within the clinical environment.

Medical careers often involve high volumes of work and long shifts, causing stress and tiredness which have been linked to exacerbating SpLD related difficulties (Illingworth, 2005). These can weaken coping strategies and result in maladaptive strategies such as overworking, which in turn can lead to further stress and burnout. Some of the doctors reported being hard working however this could be due to them having created maladaptive strategies which results in them having to work harder. All the doctors in Study 1 reported that they found their work stressful and those with SpLD reported using significantly more strategies to help them cope with stress in the workplace than those doctors without SpLD. In Study 2 the doctors also reported that they tried to be aware of when they might be more susceptible to the effects of stress and tiredness.

Overall the doctors with SpLD in Studies 1 and 2 reported they were coping well with their job and, despite experiencing some difficulties, they felt they did their job well. The results from Study 1 also demonstrated that although there were areas where the views and experiences of doctors with SpLD differ to those without SpLD there were also similarities in ratings between the two groups, indicating similar experiences. These findings are supported by Sanderson-Mann et al. (2012) who also found that the only particular difference between nursing students with and without SpLD was that those with SpLD experienced more difficulties with reading and writing. A possible reason for similarities in the results between the two groups of doctors could be because the doctors with SpLD had already established successful coping strategies to help reduce the impact of SpLD on their work. Another reason could be that they were in different specialties to doctors without SpLD, where there was less of an impact of their SpLD related difficulties.

Being a doctor with SpLD can also have some positive impacts and during the Study 2 interviews the doctors discussed some of the positive skills that having SpLD can bring to the role of being a doctor. The most frequently reported skills discussed by the doctors with SpLD related to communication and empathy in relation to their patients. Most of the doctors commented on how important it was for them to try and engage with their patients and they felt that their particular strengths as a doctors lay in their ability to communicate, empathise, understand and create an effective rapport with

their patients. Although this was noted by the doctors with SpLD as a particular strength during Study 2, during Study 1 there was no difference in how doctors with and without SpLD rated their empathic skills and both groups did rate their performance in this area highly. Empathy has been found to be a very important skill for doctors and has positive effects on both the doctors' job satisfaction and well being (Hojat et al., 2002; Hemmerdinger et al., 2007). Previous studies with dyslexic nurses has also found empathy to be a particular strength (Sanderson-Mann and McCandles, 2006; Wray et al., 2012).

During Study 2, the doctors described how having SpLD had given them a sense of appreciation and gratitude for what they had achieved with their career, education and life. They expressed that their unique experiences of having SpLD had given them genuine and sincere compassion and empathy towards their patients. Taylor and Walter (2003) also found that those with dyslexia were more likely to work in people-orientated professions as they had strengths in being able to relate to people due to their experiences. Being able to relate to people and communicate effectively are also important skills for doctors to have and can result in benefits for doctors and their patients (Maguire and Pitceathly, 2002).

The results from Study 1 showed that the doctors rated their performance on the clinical skill 'understanding medical ethical principles, including confidentiality' as their highest skill and this was significantly higher than doctors without SpLD. Potential reasons for this could again come back to doctors with SpLD drawing on their previous experiences with the effects of SpLD and them being able to relate patients and understand ethical issues particularly around confidentiality.

Doctors highlighted their skills in the practical aspects of their work as a strength, which has also been reported in other healthcare professions (Sanderson-Mann and McCandles, 2006; Murphy, 2008). These strengths are then developed into creative coping strategies (Morgan and Klein, 2000; Morris and Turnbull, 2006). Doctors with SpLD interviewed in Study 2 perceived that they work harder than other doctors to achieve their goals and aspirations. Other studies have also reported similar traits (Fink, 2002; Klonko, 2003; Sanderson-Mann and McCandles, 2005). Although in this study it is not clear if the harder working ethos is purely self perceived or an actual

occurrence. It would be of benefit to carry out an observational study to explore how doctors with and without SpLD carry out similar tasks.

Managing the impact of SpLD

When in employment those who have a SpLD are entitled to seek formal support according to the Equality Act (2010). During the interviews for Study 2, the doctors had quite a negative view of the process of seeking formal support and some feared that seeking formal support would lead to them being discriminated against. This could be due to concerns that others would make assumptions about their abilities and skills based on the stereotype of SpLD or perhaps they feared discrimination. However for those doctors who had sought support, laptops were found to be useful as it gave them use of assistive software and enabled them to dictate work as opposed to typing or handwriting. This is contrary to research by White (2007) which reported that technology in the clinical setting had limited success due to concerns over the safety of equipment and resistance of staff towards its use. In Study 1 a higher percentage of doctors with SpLD used assistive software to help them in the workplace when compared to doctors without SpLD. For example, voice activated software was used by the doctors. The use of voice active software is thought to reduce the time taken to produce written documents and be cost effective (Zick and Olsen, 2001; Issenman and Jaffer, 2004; Parente at al., 2004). However it has also been reported that although it may be quicker to produce the actual written document, the time taken to check and edit it increased, resulting in no overall time benefit (Sandilyan and Darley, 2013).

The doctors in Study 1 and Study 2 appeared to find implementing informal strategies useful and participants reported using many different types of coping strategies and support to help them overcome some of the difficulties that they experienced in the workplace. One of the most frequently reported strategies in both studies involved 'checking' work for errors as a means of ensuring patient safety and reducing error potential. The doctors reported extensively checking their own work and asking others to check their work. Hyper-vigilant strategies of checking were also found to be employed by dyslexic nurses and nursing students as a way to ensure patient safety (Illingworth, 2005; Morris and Turnbull, 2007b). There are many factors that could result in a doctor making an error such as poor communication, workload, ignorance

and inexperience; errors caused by such factors could occur irrespective of whether the doctor has SpLD or not (Baldwin et al., 1998; Dean et al., 2002).

Goffman (1963) explained how sometimes people will avoid doing things that highlight their disability as it does not comply with the social expect 'norm'. The doctors with SpLD were found to sometimes avoid aspects of their work due to fears that they might be stigmatised. Previous research also found that to avoid embarrassments and frustration resulting from their SpLD related difficulties, nurses would try to avoid certain aspect of their work (Morris and Turnbull, 2006). In Study 1 the doctors with SpLD reported avoiding completing drug calculations without a calculator, certain practical procedures, tasks involving sequencing, and completing tasks in front of others. The latter was also reported by doctors in Study 2. These doctors commented that they tried to avoid reading, writing and speaking in front of others when they were not prepared as they were concerned that their difficulties may show. Research with dyslexic nurses and nursing students also found that they had difficulties with presenting and speaking during ward rounds, and found talking in meetings challenging (Illingworth, 2005; Morris and Turnbull, 2007b). This avoidance of completing certain tasks in front of others could explain why some participants 'strongly agreed' that they sometimes try to hide their SpLD during Study 1.

The career stage in which the doctors were at also appeared to effect their confidence and play a role in how they managed their SpLD. Studies have found that experience with SpLD related difficulties can have negative effects on confidence (Child and Langford, 2011). The findings of Study 2 indicated that doctors in the earlier competitive stages of their medical career would be less likely to disclose, however those who were consultants were not concerned about who knew about their SpLD. The participants suggested that it would be valuable for more senior or consultant doctors with SpLD to mentor other doctors with SpLD. The results from Study 1 showed that, in contrast to doctors without SpLD, doctors with SpLD were more likely to know another doctor with SpLD. This could suggest that informal mentoring is already happening and that doctors with SpLD are confiding in each other or being selective in who they disclose to. Mentoring for doctors with SpLD is a recommendation discussed below.

Being a doctor with SpLD

Thus, the findings indicated that the effects of SpLD on individual's medical careers are varied according to the stage of their training, career and various personal life factors. Overall the results from this project suggest that the actual physical impact of SpLD remains the same in relation to difficulties with spelling and written work etc. However the need to use impression management and concerns about stigmas and stereotypes decrease over time as the doctors becomes more used to their working environment and more confident in themselves and their own abilities. For the doctors, becoming a consultant was the point at which the need to use impression management seemed to reduce or was expected to reduce, resulting in the doctors not having to worry about living up to the expectation that they should be 'perfect'.

The medical students and doctors with SpLD acknowledged a variety of impacts of their SpLD on their working and personal lives, and there were many similarities in the experiences of these two groups. In contrast to the students and doctors without SpLD, those with SpLD appeared to be experiencing more difficulties with general skills than clinical skills. But the doctors with SpLD have found successful ways to cope with any impact of their SpLD.

The findings suggest that the doctors may have more cooperative ways of communicating with their patients and show them higher levels of genuine empathy. Furthermore, their engagement with other staff to assist with error checking and accessing other support may lead to better team-working relationships, with less individualistic working patterns.

Practical Implications of the findings

Practical implications for medical education

The results from this project have provided information about potential forms of support for medical students and have led to recommendations for how medical students with SpLD can be better supported (see below). If medical students can be given appropriate support and provisions that can prepare them for future employment it will help them in establishing their medical career.

The medical school environment was reported to be competitive and stressful which may not be the most supportive learning environment for any student; however, for those students with SpLD this stress can only be magnified. The results indicate that if medical schools could develop ways to become more supportive and promote psychological health for all medical students it may help reduce some of the stress experienced by students. This could done by increasing awareness of SpLD, thus helping to reduce stigma and discrimination, and enabling students with SpLD to feel more comfortable when seeking support, disclosing their disability and using the support itself.

Studies have suggested it is important for those with SpLD to disclose their SpLD early to get the support they might need (Rosebraugh, 2000; Murphy, 2008). It is important that support provided to individuals with SpLD is tailored to their individual needs (Gibson and Leinster, 2011; Ridley, 2011), However, some of the support provided to students with SpLD maybe unnecessarily excluding those students without SpLD. Students without SpLD may feel unfairly treated if they see other students receiving support that they do not; this could exacerbate an already competitive atmosphere and put barriers between those students with SpLD and those without. To combat this there are some more general adjustments and support that could be applied for all medical students with and without SpLD. This might alleviate concerns from students with SpLD about feeling like 'problem students', ease concerns about stigmas associated with SpLD and discrimination from other students, whilst promoting a more supportive and inclusive learning environment for all students.

Such support (as suggested from the findings of this project) could include: implementing certain standardized features such as using Sans Serif fonts as standard for all written and online documents created by the medical school, making lecture notes of upcoming classes available to all instead of just those with SpLD, using more online resources and visual learning aids, providing lectures in the form of podcasts and video clips or audio recordings and installing mind mapping software and screen readers as standard on all university computers.

Providing additional study support sessions for all students would also be beneficial. Medical students with and without SpLD reported that they found their work stressful

and so they could benefit from improving skills such as organising workload, time management and note taking during these sessions. All medical students, regardless of whether they had SpLD, reported using coping strategies, so the students could learn from each other during these support study sessions by sharing coping strategies and ideas. Sessions could also work on SpLD awareness and creating transferable coping strategies for students to use once qualified, particular as newly qualified and junior doctors have been found to be particularly prone to stress (Jaques, 2013). All students might also benefit from extra sessions on the practical aspects of pharmacology, as completing drug calculations was the lowest rated work-related skill by both medical students with and without SpLD. Previous research has also found that medical students experience many difficulties when completing drug calculations (Degnan et al. 2006; Wheeler et al., 2006). Given the critical nature of drug calculations and the implications for patient safety perhaps there should be more rigorous admission criteria or assessment of arithmetic/mathematical skills on acceptance of future medical students.

These types of adjustments are all in line with the reasonable adjustments that would be made for a student with SpLD, therefore making these types of adjustments and support available to all medical students who wished to use them should not be too much of an imposition for medical schools. It could result in benefits such as reduction of medical students' stress levels, improvements in their general skills and a reduction in stigmas of SpLD. This is also a way in which those who do not wish to disclose their SpLD for whatever reasons could still get some support.

It is important that those with SpLD do receive specialised tailored support too. As found in Study 2, medical students are often diagnosed with SpLD when their coping strategies fail and they begin to experience difficulties on their medical course. As a way of ensuring that all students with SpLD are supported as early as possible with their work, previous studies have suggested performing SpLD screening tests early on in their courses in order to identify those who may have SpLD (Murphy, 2008; Gibson and Leinster, 2011; Wray et al., 2011). Providing screening would be a way to ensure that students with undiagnosed SpLD are identified and provided with appropriate support early on to help them through medical school.

The actual 'assessments of needs' complete by the interviewed doctors when in medical school was found to be quite negative and some of the doctors even described being discriminated against because they were studying medicine. The assessors were found to be unsure about how to deal with them as medical students and about what support would be useful to them. It would be beneficial if those who are completing the 'assessments of needs' had some knowledge of what it is like to complete a medical degree and understand what the students will go through during their degree. It is also important that if assistive software or equipment is provided following assessment of needs that adequate training is provide on how to use it so that the student is able to get full advantage of having access to the software / equipment. The SpLD assessment process could also be improved in relation to the time in between the student attending a screening and the implementation of support.

Another way to help support medical students with SpLD would be to improve communication between the support services, medical school and placements, as was suggested by the doctors with SpLD in this project. This would mean that if a medical student was diagnosed with SpLD, assuming the student gave consent, the support services could communicate with their medical school tutor and placements tutors so that the appropriate support could automatically be provided to the student, without the student having to actively disclose their SpLD every time they changed placement.

When compared to medical students with SpLD, doctors with SpLD reported using more strategies in the workplace to help cope with stress and difficulties in their work. This could indicate that medical students with SpLD may need to develop further transferable coping strategies to prepare them for when qualified due to the different nature of their role. As such, medical schools perhaps need to better prepare those students with SpLD to establish coping strategies that can be used both during their medical degrees and also when they are qualified working doctors. This could help to relieve some of the stress that both groups strongly reported in relation to their work/university work. Other potentially useful support suggested by doctors with SpLD for medical students with SpLD included aids that could shorten the length of time taking notes and writing, strategies to help keep up-to-date with current literature and reading, and podcasts of lectures.

Medical students with SpLD who have disclosed and sought formal support may benefit from the use of specialised SpLD support groups in order to gain help and advice. This could be a part of a specialised national online SpLD support group for all doctors and medical students with SpLD (described in more detail below). Through such an online support group, medical students could communicate with other medical students with SpLD in a safe and secure environment; where they would not have to be concerned about possible discrimination or stigmas from others. This could be done in combination with support for doctors with SpLD (described below) and mentoring systems could also provide valuable experience and support for the medical students. In conversation Dr. S Gibson commented (personal communication 23rd September 2013) how support and help groups are offered to medical students with SpLD at the University of East Anglia, however medical students often do not attend. This could be because the students have busy work schedules and clinical placements take them away from campus, which becomes a barrier to them taking up support. Providing this specialised support online would also mean that when students are out on clinical placements or studying at home they can still have access to this support and without having to disclose to anyone. See Figure 10 for a summary of recommendations.

Recommendations for support for medical students with SpLD

- Student Support Services need to better advertise their services and encourage students to disclose their SpLD.

- Offer initial screening for SpLD early in degree and make students aware of the importance of early detection.

- Promote Disability Student Services and provide information such as the Adults Dyslexia Checklist to increase awareness and reduce stigmas of SpLD and guide students towards detecting for themselves if they suspect they may have SpLD.

- Providing support to all medical students; this should help to reduce stigmas, lower stress levels of all students and promote a more inclusive learning environment.

- Offer support sessions to develop transferable coping strategies for all medical students to use once qualified, covering issues such as organizing work load and time management.

- Provide SpLD specific support for those students who disclose and want formal support.

- Ensure that those assessing medical students with SpLD are aware of the specialised needs of students studying medicine.

- Improve communication between student support services, medical school and clinical placement tutors about those students who have SpLD.

Figure 10: Recommendations of support for medical students with SpLD

Practical implications for practicing doctors

In addition to providing recommendations for how medical students with SpLD can be better supported, the findings of this project have similar practical implications for doctors with SpLD. Equality and diversity policies from the General Medical Council (GMC) and Royal Colleges are now in place to encourage the inclusion and support of those with SpLD (Shrewsbury, 2012). However the doctors who participated in this project still spoke about the effects of stigmas and fear of discrimination in relation to seeking support and disclosing their SpLD. This illustrates that although these policies may be a positive step, there is still more to do to raise awareness of SpLD and reduce stigmas. Better advertisement and awareness of support available in the workplace for

those with SpLD may help doctors feel more comfortable in disclosing their SpLD and more positive about using the support provided. The doctors described the process of seeking formal support and their experiences with the actual assessment process negatively. Not all support available for doctors with SpLD is appropriate for use in the clinical environment, so it is important that any practical limitations of the doctor's working environment are considered to ensure that support offered can actually be used. It is also important that doctors are assessed and receive support that is individually tailored to their specific needs their specific needs, rather than offering a 'one size fits all' solution to support which may lead to doctors being offered support that they cannot or will not use. The findings from this project have suggested that it would be beneficial for doctors if the person conducting the assessments had knowledge and understanding of the work doctors do, and the environment in which doctors work.

One of the most frequently mentioned difficulty for doctors with SpLD was with spelling. The most repeatedly used method of checking this was using spell-check facilities on computers. However the doctors explained that spell-check facilities were not available on some medical software. Thus, it would be beneficial if future medical software could have spell-checking facilities as standard, as this would save time in doctors having to look up the spelling of medical terms or medication. Other forms of support which would be beneficial for some doctors with SpLD include, the ability to dictate more work (to make production of written work quicker), availability of more electronic sources such as electronic journals, podcasts of journals and e-learning resources with strong visual and audio elements (to minimize the need for reading), and use of certain fonts and styles as standard across all workplace documentation (to make documents easier to read).

Results have shown that doctors felt that the prospect of knowing other doctors with SpLD and being able to discuss their dyslexia with someone who truly understands what it is like to work in a medical environment would be extremely beneficial and stress reducing. There are some support websites and support groups for disabled doctors such as the 'Association of Disabled Professionals' and 'Hope 4 Medics', however if the doctors do not consider themselves to be disabled (as these results suggest is the case), then they may think these sites do not apply to them. These sites also deal with more general disabilities and only provide general support and advice. It would be beneficial for the doctors to create a specific support group where doctors

with SpLD can interact or communicate with other doctors who have SpLD. Creating such a support group for doctors with SpLD, preferably online, would enable the doctors to communicate with other doctors with SpLD to share experiences and discuss coping strategies and support used in practice. This would also be a way in which already successful doctors with SpLD could become a role model or mentor for more recently qualified doctors with SpLD. Results from Study 2 found that consultants with SpLD were not concerned about who knew about their SpLD, such doctors could become positive role models for more junior doctors with SpLD. This could help doctors with SpLD feel supported and reduce stress levels. Such a group could also provide general information about SpLD and act as a point of contact and a source of information about support available and advice for not only doctors with SpLD but also colleagues, employers and medical schools interested in SpLD. This could increase awareness of the needs of doctors with SpLD and help reduce stigmas associated with SpLD. Another useful provision for doctors with SpLD would be for SpLD specific support to be made available which focused on developing effective coping strategies to aid with difficulties such as organization and processing information. Again providing general information about this online as part of the above mentioned specialised national support group, would enable doctors with SpLD throughout the UK to access it, and the support would be available constantly. A summary of potentially useful support for doctors with SpLD is outlined in Figure 11.

Recommendations for support for medical doctors with SpLD

- Further promotion and encouragement of inclusion policies for those with SpLD in medicine.
- Promote and advertise support services available for doctors with SpLD.
- Assessment of needs assessors who have an understanding of working life as a doctor.
- Provide SpLD specific support in relation to more general skills.
- Provide medical spell-checker on future medical software.
- Create an online group for doctors with SpLD to share coping strategies and advice for each other.
- Support the development of medical role models/mentors to help provide advice and support for newly qualified doctors with SpLD.
- Provide more information about doctors with SpLD to help increase awareness and reduce the stigmas associated with doctors having SpLD.

Figure 11: Recommendations for support for doctors with SpLD

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Project limitations

The reasons why interviews and questionnaires were considered the most appropriate methods for this project, along with limitations and advantages of these methods were detailed in Chapter 4; here the specific limitations of the project will be outlined.

A slightly higher response rate for Study 1 and Study 3 would have helped to confirm the findings and aid in the generalization of the results. However the sample sizes for all the studies were sufficient to allow analysis of the variables of interest. Additionally the participants' responses showed a variety of positive and negative experiences, impacts and opinions, and responses were obtained from doctors in a number of specialties, with varying years of medical experience. In all three studies there were more female participants than males; however figures have shown increases in females studying medicine over time, with 55% of medical students in 2012 being female (GMC, 2013).

SpLD are potentially a sensitive issue for people to discuss especially due to the associated negative stigmas and perceptions, as was highlighted in this study. Therefore there was the risk that those participating in the study might only tell what they wished to tell and hide other important information (Murphy, 2010; Ridley, 2011). Additionally, this may have deterred some people from participating to begin with. However, in the participant information sheets for each of the studies, participants were reassured about the confidentiality of their data. Furthermore, participation was completely voluntary, so only those who wished to take part did. For Studies 1 and 3 participants never needed to be in contact with the researcher; thus it is hoped that people will not have been deterred from participating as they could have completed the electronic questionnaires in private without anyone knowing. Thus, there is no reason to believe that the participants did not answer the questions truthfully. This assumption is supported by the findings themselves, where participants raised issues related to the challenges and stressors they were facing, and commented on aspects of discrimination and stigmas.

It could be argued that only those who were substantially affected by SpLD would want to participate, however for Study 2, a range of participants came forward for interviews including participants who initially thought that SpLD had not affected them. This

suggests that a range of participants were participating, not just those who thought their SpLD had an impact.

Participants for Study 3 were restricted to those medical students attending Norwich Medical School. Study 3 was a smaller additional study, added following initial findings from Study 1 and Study 2. Conducting Study 3 whilst recruiting from Norwich Medical School represented a convenient source of participants for this additional study; but using only one medical school has limited the results in term of applying them to other medical students from different institutions.

This project included those with suspected SpLD, in addition to those who had been diagnosed with SpLD, as detailed in Chapter 4. It was initially hoped to compare the results by three groups, 1) those without SpLD, 2) those with a diagnosed SpLD and 3) those with a suspected SpLD. However due to lower participation numbers from the latter two groups this was not possible. The reasons for including both those with suspected and diagnosed SpLD were that, as discussed in Chapter 1, SpLD are a vague umbrella term used to cover a number of learning difficulties with dyslexia being the most common of these. There is no agreed single definition of dyslexia, and some have even disputed that there is such a thing (Elliott and Gibbs, 2008). However, this project was based on the fact that in today's literacy-based society there are a number of individuals who encounter unique challenges (Tanner, 2010).

Many of the research studies conducted with nurses, nursing students or medical students with dyslexia used an inclusion criteria that only allowed those with a full diagnosis to participate (Morris and Turnbull, 2007b; Ricketts et al, 2010; Ridley, 2011;Evans, 2013). However the criteria used to diagnose dyslexia is not consistent throughout the UK (Richardson and Wyndell, 2003). One study with dyslexic medical students explained that although they only used participants who had a diagnosed dyslexia report from educational psychologists, these reports may have used different criteria to reach a diagnosis of dyslexia (Gibson and Leinster, 2011). This study also explained that concerns have been raised that medical students could be able to falsify their performance during a SpLD diagnostic test in order to receive support and perceived advantages such as extra time in assessments (Gibson and Leinster, 2011). In relation to participation in this project, there were no perceived gains from reporting

whether they had a diagnosed/suspected SpLD, therefore it is hoped that participants answered honestly in this regard.

The results from this project have shown that the negative stigmas associated with SpLD can influence people's decisions regarding disclosing. As such, it is possible that some people will be hesitant when considering going to be assessed or would even defer from being assessed if they thought they really did have SpLD. Additionally, a person might strongly suspect that they have SpLD, but they have not been diagnosed due to having already implemented successful strategies and coping well at medical school or as a qualified doctor. Therefore by not including the suspected SpLD group potentially useful information might be missed regarding, for example, how these people cope with SpLD. Indeed, one study which only included those with a formal diagnosis, noted that a limitation of their study was that 'it is likely that some individuals were excluded because they chose not to disclose' (White, 2007, p41). As a result of not including those with suspected SpLD, Ridley (2011) explained that in their study with dyslexic nursing students there were no first year participants, potentially due to the assessment processing taking so long to complete.

A further reason for including those with suspected SpLD is that some of the older participants may not have had their SpLD diagnosed due to lack of awareness and scepticism from educationalists during their schooling (Nalavany et al., 2013). During the 1950s, 1960s and 1970s children who experienced literacy difficulties were more likely to have that attributed to them having lower levels of intelligence, poor motivation or poor home lives than SpLD and it was not until the 1980s that an increasing proportion of educationalists began to accept the construct of SpLD (Nalavany et al., 2013). This lack of recognition of the existence of SpLD has also acted as a barrier to support for those who began their medical careers earlier, as it is only since 1995 when the Disability Discrimination Act was introduced that anyone with SpLD would have had some legislation in place to help them receive support in the workplace.

Therefore for these reasons it was considered important that those who suspected that they had SpLD were eligible for inclusion in all three of this project's studies. No proof of a diagnosis was asked for in any of the studies in this project and the grouping of doctors / medical students with SpLD or suspected SpLD or no SpLD were taken from the participants' self reporting. As discussed however there is no particular reason for

people to lie about having or not having SpLD in the context of this research and so the data should be accurate. This said, there may have been individuals who do actually have SpLD, but are not aware of it and so selected the 'non-SpLD' option.

Further research

This project has highlighted the issues that surround doctors with SpLD in their workplace and provided a basis for future research into doctors with SpLD.

As discussed, this project included those with suspected SpLD. It would be interesting to look at those doctors who suspect they have SpLD and explore the reasons why they think this, to establish people's level of self awareness and accuracy in awareness of SpLD. Also the potential reasons as to why they have not investigated their suspected SpLD further could be investigated. For example, is it due to fear of discrimination, the implementation of successful coping strategies or are they in the particular specialty that is better suited to their strengths and weaknesses? It would also be interesting to compare those with suspected SpLD and those with a diagnosis to see if there is any difference in how they cope and feel about SpLD. As previously stated, this was intended but the numbers were not sufficient to allow this analysis. It would also be interesting to explore how those doctors with formal assessments and official support are performing compared to those who suspect they have SpLD and are relying solely on informal support and their own self-generated coping strategies.

As part of the Equality Act and the Public Sector Equality Duty there is the need for equality and diversity monitoring to measure performance and progress towards becoming an inclusive working environment free from discrimination. As part of this, employees are encouraged to disclose their SpLD so that reasonable adjustments and support can be provided. Future research to establish the effect that this has on doctors and their rates of disclosure and provision of support should be investigated.

All of the studies in this project were based upon self-reported data. To confirm some of the findings other research methods could be implemented in the future. For example, observations of doctors with SpLD in the workplace could help examine exactly how doctors with SpLD are functioning.

The findings of this project have found that empathy and understanding of patient needs are strengths both doctors and medical students felt they had due to having SpLD. To explore this from a different perceptive, patient feedback could be gathered to establish if patients feel that their doctor actually is empathic and understanding. Doctors with and without SpLD could be compared to see if doctors with SpLD get higher patient satisfaction ratings. Similarly, manager reports could be explored to see how they feel doctors with SpLD perform and if they feel doctors' strengths and weaknesses match up to those reported by the doctors themselves.

Further research into why empathy and understanding are reported strengths for doctors with SpLD could be beneficial and help to understand more about the psychological impact of being a doctor with SpLD. Communication and empathy are important skills in being a doctor, so is there something to learn from the way that doctors with SpLD communicate with their patient, and does the way doctors with SpLD communicate with their patients differ to those doctors who do not have SpLD?

Written work and aspects associated with it (spelling, expressing oneself, hand writing) were tasks that most doctors with SpLD had difficulties with. Voice dictation is becoming more frequently used for medical paperwork and some doctors reported that it is being implemented across certain specialties (mainly radiology). Research into how effective and practical voice dictation is, and other possible ways to reduce or ease written work for doctors with SpLD would be beneficial.

Some of the doctors reported using assistive software in their work and some found this to be useful for completing certain tasks. Further research into the appropriateness and effectiveness of specific assistive software for supporting doctors with SpLD would be useful in order to establish what tasks it is productive for, if it reduces mistakes in their work and if the doctors find it quicker to produce work using it. It would also be beneficial to establish if there are any negative aspects about using this software in a clinical environment and if there are any ways to overcome these.

The initial results from Studies 1 and 2 indicated that medical students are also affected by SpLD. When examining this further in Study 3, it was found that although support is in place for some students, students reported not using support or not finding it effective. A replica of this project's Study 2 where telephone interviews are conducted

with medical students with SpLD in order to elaborate on some of the findings from Study 3 would be useful. For example it would be useful to explore reasons for disclosure, why students rate their academic environment more stressful and competitive compared to their clinical placements, what support they find useful, what elements of support they think could be improved upon, and how they feel about being a medical student with SpLD. It would also be beneficial to further investigate the perceptions of medical students with SpLD held by those students without a SpLD. Medical students with SpLD spoke about feeling 'different' or being a 'problem student' but do other students actually see them this way?

Also all of the students in Study 3 were based at one institution that used Problem based learning as their main method of teaching. It would be interesting to conduct the Study 3 questionnaire across a range of medical schools in the UK, to compare the results across different methods of teaching and to ensure that the best support possible is provided to medical students irrespective of where they are training.

Conclusions

This project aimed to develop an understanding of how doctors with SpLD are coping in the workplace. This aim was met through a series of three interlinked research studies with medical students and doctors, with and without SpLD. Through these studies the strengths and difficulties medical students and doctors with SpLD felt they had in the workplace / educational environment were identified. The availability, type and success of coping strategies and support were explored. Perceptions of doctors with SpLD were examined from the perspective of those with and without SpLD. Issues surrounding whether and to whom SpLD are disclosed were examined. And the impact of SpLD on medical students' and doctors' career choices was considered. In focusing this research on doctors with SpLD it contributes to the existing published research literature which has thus far neglected doctors.

In summary, the findings across all three studies of the project have shown that SpLD do have varying effects upon doctors and medical students throughout their medical careers. Doctors and medical students with SpLD implement coping strategies of various sorts to help overcome difficulties that they face as a result of their SpLD. This project found a discrepancy between the self reported performance rating of doctors'

skills when completing everyday tasks and clinical work tasks, with performance on the clinical work tasks being rated significantly better for doctors with SpLD. These findings were mirrored amongst the medical students with SpLD. However the doctors were able to identify their weaknesses and appeared to have developed coping strategies to compensate for these. The doctors were very aware of their professional responsibilities to ensure patient safety and implemented comprehensive error checking strategies in their work to ensure patient safety. Doctors with SpLD also perceived themselves to be genuinely caring and empathic towards their patients and able to relate to the needs of their patients. Through their experience of having SpLD the doctors with SpLD appear to have found new ways of practicing and strategies to overcome their SpLD-related difficulties and the barriers they face, particularly related to communication with staff and patients, levels of empathy and compassion, and ways of working to prevent error. The doctors appeared to manage the impression given to their patients and their colleagues in different ways. Disclosing their SpLD to build rapport with patients but hiding it from colleagues in fear of stigmas or being seen as weak, particularly during the more competitive earlier stages of their career. Notions of discrimination and negative stigmas associated with SpLD seemed to impact on doctors and medical students in relation to disclosing their SpLD and seeking support. A way forward to help future doctors is by providing suitable transferable support and adjustments for medical students with SpLD, so that they will be better prepared when faced with the responsibility of being a fully qualified doctor.

In conclusion, the overall aim of this project was to develop an understanding of how doctors with SpLD are coping in the workplace. The results from this project show that SpLD do have an impact on doctors in the workplace. Doctors with SpLD experience difficulties, primarily with their written work. To overcome these difficulties the doctors often develop their own compensatory strategies. But, despite experiencing difficulties, the doctors felt they had specific strengths due to having a SpLD and generally felt that they were coping well with their work. Mercer and Pinder (2000, p 962) comment 'doctors with personal experience of coping successfully with a disability are in a unique position and should be viewed as a resource', and the findings of this project support that notion. However, research is still needed to ensure that doctors with SpLD are supported in the clinical environment and to encourage disclosure of their disability in the workplace, so that doctors with SpLD can continue to provide the best possible clinical care to patients and have flourishing medical careers.

Appendix Contents

Appendix 1 - Pilot A Interview schedule

Interviews with Doctors who have Specific Learning Difficulties (Pilot A)

1. Do you feel like having a Specific Learning Difficulty, such as dyslexia, impacts on your work as a doctor?

2. How does it affect you in a workplace setting?

3. Do you have any formal or informal support in place?

4. Have you disclosed your disability and why? If no go to 6.

5. How did your colleagues react?

6. Are you worried about how colleagues would reaction?

7. Do you feel like people would judge you for having dyslexia/learning difficulty?

8. Could you give us some examples please?

9. Would you consider telling a patient?

10. How do you feel about working with students with SpLD?

11. Is there anything else you would like to comment on or add that you think may be pertinent to this study?

Appendix 2 - Invitation e-mail to recruit GPs with SpLD for Pilot A interview

Dear Sir/Madam

We are currently conducting a research study to investigate how medical practitioners with Specific Learning Difficulties, such as dyslexia, approach working in a clinical setting. As part of the research project we would like to explore the perceptions about dyslexia and its effects of dyslexia on working doctors.

If you are a General Practitioner and have been diagnosed with, or suspect that you have, a SpLD such as dyslexia, we would be very interested to hear from you. We would appreciate it if you would be willing to spare up to 60 minutes of your time (once only) to be interviewed about the following:

- Any effects of dyslexia/learning difficulties on you as a doctor
- Any support that you may have in place
- How you feel about disclosing your dyslexia/learning difficulties
- Your general views around dyslexia/learning difficulties

The interview would be organised at a time and place of your convenience and would be digitally recorded for transcription purposes. The interview will be entirely confidential. Please see the attached participant information for more details about the study.

If you require further information about the interview process or would like to participate please contact me:

Jennifer Musto,
PhD Student in Medical Education
School of Medicine Health Policy and Practice
University of East Anglia, Norwich, NR4 7TJ
Tel: 01603 59 3300
Email: jennifer.musto@uea.ac.uk

We are looking forward to hearing from you.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster.

If you would like for general information on this topic then please see The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/).

Appendix 3 - Participant information sheet for Pilot A interviews

Investigation into how Doctors Deal with Specific Learning Difficulties (SpLD)
in the Workplace.

Information Sheet: Interview participants

Thank you for the interest you have shown in our research. Please note that expressing an interest in the study does not commit you to taking part. Before you decide whether or not to take part, we would like you to understand why the research is being done and what it will involve. So, please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. This Information Sheet is yours to keep. Thank you for reading this.

What is the purpose of the study?

In this study we wish to gather information about how having a Specific Learning Difficulty (SpLD) may impact on your practice. The data gathered will be used to design a questionnaire that will be used in the larger project designed to explore how doctors cope with having SpLD and how this may have shaped their practice and career progression.

This interview aims to explore the following areas:

- If you have any difficulties or advantages in the workplace due to your SpLD such as dyslexia.
- If you have disclosed that you have a SpLD and the reasons for your decision.
- Support that you may or may not have in place

Who will be taking part in the study?

We will be inviting any General Practitioner who is one the University of East Anglia (UEA) Medical School Recognised Teachers Register, who suspects that they have or have been diagnosed with a SpLD such as dyslexia to participate.

Do I have to take part?

No, it is completely up to you to decide if you want to take part. If you do decide to take part you will be given another copy of this Information Sheet to read before the interview and keep. You will be asked to sign two copies of a Consent Form (one for us and one for you to keep). If you decide to take part you are still free to withdraw at any time and without giving a reason.

If I do decide to take part, what will I have to do?

You will either come to the School of Medicine, Health Policy and Practice, UEA or a mutually convenient time and location arranged to participate in an interview in which you will be asked discuss a series of questions about the effects of your SpLD. It is expected that the interview will last about an hour. In order to participate, you will need to give us your permission to digitally record the discussion. The reason for recording the interview is to keep an accurate record of the discussion.

Are you testing my knowledge in some way?

No, this is not a test of your knowledge. There are no right or wrong answers, we are only interested in your opinions.

Will my responses be kept anonymous?

Yes, all the information that you provide during the course of the study will be kept strictly confidential and in accordance with the Data Protection Act (1998). The responses you give will only be identified by a participant number, and the results will always be presented in a manner that preserves the anonymity of those taking part. The data analysis will be undertaken by the interviewer, Jennifer Musto.

What will happen to the results?

The results will be used to inform the future direction of this overall project and subject areas that need to be addressed in the future. We hope to publish the overall results of this project in an academic journal and present the results at national conferences.

How long will the data be stored for?

At the end of the two-year research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of (maximum total data storage time: 12 years).

Who is organising and funding the study?

The study is being organised by the School of Medicine, Health, Policy and Practice at the University of East Anglia. The study is funded by the University of East Anglia.

Who has reviewed the study?

The study has been reviewed by Dr Sandra Gibson and Dr Susan Miles of the University of East Anglia. The study has been granted ethical approval by …………(to be completed when ethical approval has been granted)

Who can I contact for further information?

Any request for further information does not commit you to taking part in the study.
If you would like further information about the study, please contact:

Where can I get some general information regarding dyslexia and learning difficulties?

If you would like more information on this topic or would like to seeks further help and support, then please see The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/) or the British Institute of Leaning Difficulties (http://www.bild.org.uk) for details of a range of services and information available.

Jennifer Musto

PhD Student

School of Medicine Health Policy and Practice

University of East Anglia, Norwich, NR4 7TJ

Tel: 01603 593300
Email: jennifer.musto@uea.ac.uk

Appendix 4 - Ethical approval for Pilot A and B

RE: ethics proposal

Lebeau Yann Dr (EDU)

To: Musto Jennifer Miss (MED)

Cc: Corby Dawn Mrs (SSF)

• You replied on 24/09/2013 12:30.

Many thanks Jennifer. Your proposal is now approved and I will attached the revised document to the original application.

I wish you the best for your research.

Yann

>-----Original Message-----
>From: J.Musto@uea.ac.uk [mailto:J.Musto@uea.ac.uk]
>Sent: Tuesday, June 15, 2010 3:43 PM
>To: Lebeau Yann Dr (EDU)
>Subject: Re: ethics proposal
>

Appendix 5 - Consent form for Pilot A interviews

Study number:

Participant number:

Title: Investigation into how Doctors Deal with SpLD in the Workplace.

Consent Form: Interviews with Doctors with SpLD

*Please **initial** each box*

1. I confirm that I have read and understood the Information Sheet
    for the above study.

2. I confirm that I have had the opportunity to ask questions, to which I have
    received satisfactory answers.

3. I understand that my participation is voluntary and that I am free to
    withdraw at any time, without giving any reason.

4. I give my permission for my interview to be audio taped.

5. I understand that all my responses will be kept strictly confidential
    and my name will not appear in any reports or other publications.

6. I agree to take part in the above study.

………………………………..   ……………………………………   ……………

Name of participant   *Signature*   *Date*

………………………………..   ……………………………………   ……………

Name of interviewer   *Signature*   *Date*

1 copy for participant; 1 copy for interviewer

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Appendix 6 - Demographic Form for Pilot A interviews

Study number:

Participant number:

Title: Investigation into how Doctors Deal with SpLD in the Workplace.

(1) Personal Information (Please circle the appropriate answer)

1. Age: 22 – 26   27 – 30   31 – 35   36 – 40   41 – 50   51 – 55   56+

2. Gender: Male / Female

3. How long have you been a General Practitioner? (please state)_____

(2) Disability information

4. Do you believe that you have learning difficulty, such as, dyslexia, dyspraxia, dyscalculia, **Attention Deficit Disorder** (ADD) or **Attention Deficit Hyperactivity Disorder (ADHD)**?

                    No   Yes   Suspected

5. Have you been formally diagnosed with a learning difficulty? If so, what learning difficulty/s and when were you diagnosed?

Where were you diagnosed	Dyslexia	Dyspraxia	Dyscalculia	Other (please state)
School				
University				
Work				

Appendix 7 - Invite for Pilot B email

University of East Anglia

Dear Doctor

We are currently conducting a research study to investigate how doctors cope in clinical settings and we would appreciate your assistance.

As part of a pilot study we would be grateful if you could provide your comments and/or suggestions on the questionnaire at the below link.

> http://www.surveymonkey.com/s/3J8S5JD

If possible, could you please respond by 21st June 2011. If you have any queries please do not hesitate to contact me.

> Jennifer Musto,
> PhD Student in Medical Education
> School of Medicine Health Policy and Practice
> University of East Anglia, Norwich, NR4 7TJ
> Tel: 01603 59 3300
> Email: j.musto@uea.ac.uk

In anticipation, sincere thanks for your valued response.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster.

Appendix 8 - Final version of Study 1 online questionnaire

Coping in the Workplace 1

1. Information for participants

Thank you for taking the time to complete this questionnaire.

This questionnaire contains questions regarding how you cope with your work and your perceptions of doctors with Specific Learning Difficulties (SpLDs) such as dyslexia, dyspraxia, dyscalculia or attention deficit hyperactivity disorder (ADHD).

Please note that if you complete and return this questionnaire you are giving us your consent to use the data you provide in the questionnaire for research purposes, which includes publication of your anonymised data in academic journals and other research publications.

If you have any queries about this before completing the questionnaire, please feel free to contact me.

Jennifer Musto

PhD Student in Medical Education
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich,
NR4 7TJ

01603 593300

J.Musto@uea.ac.uk

Your input is greatly appreciated.

For the participant information sheet Click here to read Or click 'next' to complete the questionnaire.

Or if you would like to take part in a telephone interview Click here to add your contact details or there is another link to this at the end of the questionnaire or if you prefer you can conact Jennifer Musto directly on the details above. Thank you very much for you time.

Coping in the Workplace 1

2. Personal information

Please can you provide us with the following personal information.

1. Age

○ 22-26   ○ 36-40   ○ 56+
○ 27-30   ○ 41-50
○ 31-35   ○ 51-55

2. Gender

○ Male   ○ Female

3. What speciality do you currently work in?

4. Which year did you graduate from medical school?

Year _____

5. Which medical school did you go to?

6. Would you describe this as having a;

○ Traditional course   ○ Problem Based Learning (PBL) course

Other (please specify)

7. What is your current level of employment?

○ F1   ○ SpR2
○ F2   ○ Consultant
○ SpR1   ○ GP

Other (please specify)

8. How long have you been in your current job role?

Years _____

Coping in the Workplace 1

3. Coping in the workplace

1. Please indicate your level of agreement with the following statements:

	Strongly Agree	Inclined to Agree	Neither	Inclined to Disagree	Strongly Disagree
My work can be stressful	○	○	○	○	○
I cope well in stressful situations at work	○	○	○	○	○
I use strategies to help me cope with stress in the workplace	○	○	○	○	○
I do my job well	○	○	○	○	○
I am often concerned that I will make a mistake with my work	○	○	○	○	○
I have been made to feel uncomfortable in my workplace due to difficulties at my work	○	○	○	○	○

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Coping in the Workplace 1

5. Work related skills

1. Please indicate how you would rate yourself on the following work tasks

	Very good	Good	Average	Poor	Very poor	N/A
Completing clinical examinations	○	○	○	○	○	○
Diagnostic skills during consultation	○	○	○	○	○	○
Prescribing medication	○	○	○	○	○	○
Record keeping	○	○	○	○	○	○
Practical clinical skills	○	○	○	○	○	○
Taking patient information	○	○	○	○	○	○
Team working and relationships with staff	○	○	○	○	○	○
Being aware of your limitations	○	○	○	○	○	○
Responding effectively to emergencies	○	○	○	○	○	○
Following safe procedures	○	○	○	○	○	○
Being responsible for your own learning	○	○	○	○	○	○
Discussing treatment options, including relative risks and benefits, with patients	○	○	○	○	○	○
Explaining medicines to patients	○	○	○	○	○	○

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Coping in the Workplace 1

7. Perceptions

1. Please indicate your level of agreement with the following statements:

	Strongly agree	Inclined to agree	Neither	Inclined to disagree	Strongly disagree
Overall having a disability would impact negatively upon working successfully as a doctor	○	○	○	○	○
A doctor with dyslexia/SpLDs would have more weaknesses in the workplace	○	○	○	○	○
A doctor with dyslexia/SpLDs would have more strengths in the workplace	○	○	○	○	○
A doctor with dyslexia/SpLDs would be more prone to making errors	○	○	○	○	○
A person with dyslexia/SpLDs could make a successful doctor	○	○	○	○	○
A doctor with dyslexia/SpLDs should tell their patients that they have dyslexia/SpLDs difficulties	○	○	○	○	○
A doctor with dyslexia/SpLDs should tell their colleagues that they have dyslexia/SpLDs	○	○	○	○	○
Patients would be concerned about being treated by a doctor with dyslexia/SpLDs	○	○	○	○	○
Others members of staff would treat a doctor with dyslexia/SpLDs differently	○	○	○	○	○
I would have concerns about working with a doctor who had dyslexia/SpLDs	○	○	○	○	○

2. I know doctors who have dyslexia/SpLDs

○ Yes

○ No

3. I currently work with doctors who have dyslexia/SpLDs

○ Yes they have disclosed to me

○ Yes I suspect that I am

○ No not that I am aware of

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Coping in the Workplace 1

8. Support

1. Do you use any assistive software?

☐ Voice activated

☐ Text to speech/Screen readers

☐ Mind mapping

☐ Spell checks

☐ No

Other (please specify)

[   ]

2. Have any issues with your work ever been raised in relation to errors or poor performance?

○ Yes

○ No

3. Do you use any informal strategies to help you do your job? (e.g. unofficial help from others/colleagues or other aids, systems or strategies put in place by yourself)?

○ No

○ Yes

○ Sometimes

If yes or Others, please state

[   ]

4. Please indicate the extent to which you feel you are currently coping in your job.

○ Extremely well

○ Very well

○ Moderately well

○ Slightly well

○ Not at all

Coping in the Workplace 1

9. Career

1. Are you in the speciality you thought you wanted to do when qualifying?

○ Yes

○ No, but I'm working towards it

○ No, I changed my mind since then

2. How important were each of the following factors in influencing your career choice?

	Very Important positively	Important positively	Unimportant	Important negatively	Very Important negatively
Personal preference	○	○	○	○	○
Specialty characteristics	○	○	○	○	○
Intellectual content of speciality	○	○	○	○	○
Speciality training process	○	○	○	○	○
Intellectual ability	○	○	○	○	○
Career opportunity	○	○	○	○	○
Lifestyle after completing training	○	○	○	○	○
Role model	○	○	○	○	○

Other (please specify)

3. Were there specialities that you specifically chose not to pursue?

○ Yes

○ No

If yes (please specify)

4. Do you think that there are certain areas of medicine that are better suited to those with dyslexia/specific learning difficulties?

○ Yes

○ No

If yes, please state

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Coping in the Workplace 1

5. Have you ever considered changing your current speciality?

○ Yes

○ No

○ N/A

If yes, why have you considered changing?

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Coping in the Workplace 1

10. Disability information

1. Do you consider yourself to have a specific learning difficulty (SpLD), such as: dyslexia, dyspraxia, dyscalculia or attention deficit hyperactivity disorder (ADHD)?

○ Yes - diagnosed

○ Yes - undiagnosed

○ No

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Coping in the Workplace 1

11. Disability information

1. Please provide details about when you were diagnosed and with which specific learning difficulties.

	Dyslexia	Dyspraxia	Dyscalculia	ADD	ADHD
School	☐	☐	☐	☐	☐
University	☐	☐	☐	☐	☐
Work	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Other diagnosis

2. Overall how severe would you rate your specific learning difficulty

○ Very mild

○ Mild

○ Moderate

○ Severe

○ Very Severe

3. Do you consider yourself to be disabled?

○ Yes

○ No

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Coping in the Workplace 1

11. Disability information

1. Please provide details about when you were diagnosed and with which specific learning difficulties.

	Dyslexia	Dyspraxia	Dyscalculia	ADD	ADHD
School	☐	☐	☐	☐	☐
University	☐	☐	☐	☐	☐
Work	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Other diagnosis

2. Overall how severe would you rate your specific learning difficulty

◯ Very mild

◯ Mild

◯ Moderate

◯ Severe

◯ Very Severe

3. Do you consider yourself to be disabled?

◯ Yes

◯ No

11. Disability information

1. Please provide details about when you were diagnosed and with which specific learning difficulties.

	Dyslexia	Dyspraxia	Dyscalculia	ADD	ADHD
School	☐	☐	☐	☐	☐
University	☐	☐	☐	☐	☐
Work	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Other diagnosis

2. Overall how severe would you rate your specific learning difficulty

○ Very mild

○ Mild

○ Moderate

○ Severe

○ Very Severe

3. Do you consider yourself to be disabled?

○ Yes

○ No

Coping in the Workplace 1

12. Other disabilities

1. Do you consider yourself to be disabled because of your specific learning difficulty?

◯ Yes

◯ No

If No, please specify

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Coping in the Workplace 1

13. Overall effects of dyslexia/Specific Learning Difficulties

1. Please rate the following

	Always	Usually	Sometimes	Rarely	Never
Does having dyslexia/SpLDs impact on your overall life?	◯	◯	◯	◯	◯
Does having dyslexia/SpLDs impact on your current work position?	◯	◯	◯	◯	◯
Do you try to avoid certain aspects of your work because of having dyslexia/SpLDs?	◯	◯	◯	◯	◯

2. If there are aspects of your work you try to avoid, please state what they are.

3. Please rate how much you agree with each of the following statements

	Strongly Agree	Inclined to Agree	Neither	Inclined to disagree	Strongly disagree
I sometimes try to hide my dyslexia/SpLD	◯	◯	◯	◯	◯
I think that others will judge me for having dyslexia/SpLDs	◯	◯	◯	◯	◯
Having dyslexia/SpLDs makes me more prone to making errors	◯	◯	◯	◯	◯
Having dyslexia/SpLDs makes me a better doctor	◯	◯	◯	◯	◯

Coping in the Workplace 1

14. Disclosure

1. Do you disclose your dyslexia/specific learning difficulty to the following?

	Yes - all the time	Yes - sometimes	No - never
Peers	○	○	○
Colleagues	○	○	○
Friends	○	○	○
Family	○	○	○
Patients	○	○	○

2. Did you disclose having dyslexia/specific learning difficulties when you applied for your current position?

○ Yes

○ No

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Coping in the Workplace 1

15. Thank you

Thank you for completing this survey. If you would be interested in participating in a telephone interview to explore the possible effects of dyslexia and SpLDs on medical doctors further, please contact Jennifer Musto for more information and details of this future study or click here. to enter your details.

This is not linked to the answers given on the previous questionnaire, so your previous responses will remain anonymous.

Jennifer Musto
PhD Student in Medical Education
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich
NR4 7TJ

01603 593300
J.Musto@uea.ac.uk

Your participation would be greatly valued.

If you would like for general information on this topic then please see The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/).

Coping in the Workplace 1

16. Thank you

Thank you for taking the time to complete this questionnaire, your participation is greatly appreciated.

If you have any queries about this, please feel free to contact me

Jennifer Musto

PhD Student in Medical Education
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich, NR4 7TJ

01603 593300
J.Musto@uea.ac.uk

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Appendix 9 - Letter to Royal Colleges for Studies 1 and 2

Faculty of Health,
School of Medicine, Health Policy and
Practice

Norwich School of Medicine
Faculty of Medicine Health Sciences
University of East Anglia

Dear (Name of President)

I am currently conducting a PhD research study to investigate how doctors cope in clinical settings and we would appreciate your assistance.

This research aims to explore how doctors with specific learning difficulties (SpLD) are coping in the workplace and coping strategies that may. It will also try to establish perceptions held by doctors with SpLD about the impact this has on their working life, patient safety and long-term career choices. Results gathered from this study will help support future doctors and medical students with SpLD.

The research involves an online questionnaire for all medical doctors (irrespective of whether they have a SpLD) and telephone interviews with doctors who have SpLD. This research has been ethical approved by The University of East Anglia, Faculty of Health Ethics Committee.

In order to contact and recruit potential participants, I was hoping that you would allow the gatekeeper of your college mailing list to forward my recruitment package (which would include an information sheet providing full details of the research and a link to the online questionnaire) to the doctors registered on your database. It would involve forwarding on 2 recruitment and 2 reminder emails.

If you would like to examine the questionnaire, please follow this link. The recruitment emails and participant information sheets are attached and a full copy of the research protocol is available on request.

https://www.surveymonkey.com/s/doctorssurvey

If you would like more information about this research please do not hesitate to contact me. I understand that mailing lists are governed by the Data Protection act and I would not wish you to compromise this, therefore if you feel that this would not be appropriate, if you can let us know, then we will not contact you again.

Thank you for your time, and I look forward to hearing from you,

Yours faithfully,

Jennifer Musto

PhD Student in Medical Education
Tel: 01603 593 300
Email: j.musto@uea.ac.uk

This is part of a PhD project that is being supervised by Professor Sam Leinster, Dr Sandra Gibson and Dr Susan Miles at the University of East Anglia

Appendix 10 - Invitation e-mail to recruit doctors for Study 1 questionnaire

University of East Anglia

Dear Sir or Madam

We are currently conducting a research study to investigate how doctors cope in clinical settings generally, and how having a Specific Learning Difficulty (SpLD) such as dyslexia may affect doctors and their work. We are inviting all doctors registered with this Royal College to participate. Please note, you do not need to have a Specific Learning Difficulty to participate.

We would be grateful if you would complete the questionnaire at the below link.

LINK TO QUESTIONNAIRE

Your responses will be anonymised in our data analyses and reporting. You can find more information about this study in the attached Information Sheet.

We would appreciate a reply by (date) please. We will email one reminder to you before the return deadline. If you have any queries please do not hesitate to contact me.

> Jennifer Musto
> PhD Student in Medical Education
> Norwich Medical School
> University of East Anglia, Norwich, NR4 7TJ
> Tel: 01603 593300
> Email: j.musto@uea.ac.uk

In anticipation, sincere thanks for your valued response.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster at the University of East Anglia.

If you would like general information on this topic then please see The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/).

Appendix 11 - Participant Information for Sheet Study 1

UEA
University of East Anglia

Participant Information Sheet: Online Questionnaire (Study 1)

Thank you for your interest in our research. Please note that expressing an interest in the study does not commit you to taking part. Before you decide whether or not to take part, we would like you to understand why the research is being done and what it will involve. So, please read the following information carefully and discuss it with others if you wish. Please feel free to contact me if there is anything that is not clear or if you would like more information. This Information Sheet is yours to keep. Thank you for reading this.

What is the purpose of the study?

In this study we wish to gather information about how doctors cope in the workplace. It also explores this in relation to the experiences of doctors with a Specific Learning Difficulty (SpLD) and how this may impact upon working as a doctor. The data gathered will be used to explore how doctors with SpLD cope compared to those doctors who do not have an SpLD.

This questionnaire aims to explore the following areas:
- How doctors cope in the workplace.
- Any difficulties or advantages doctors feel they have in the workplace.
- How having an SpLD may impact on working as a doctor.

Who will be taking part in the study?
We will be inviting any medical doctor who is registered with one of the medical Royal Colleges in the UK to complete the online questionnaire.

Do I have to take part?

No, it is completely up to you to decide if you want to take part. If you decide to take part you are still free to withdraw and without giving a reason up to the point where you submit your data. After that, because the data is anonymised, it will not be possible to remove your data.

If I do decide to take part, what will I have to do?

If you do decide to take part you will complete the questionnaire by clicking on the link in the original email. Completing the survey will take approximately 25 minutes.

Are you testing my knowledge in some way?

No, this is not a test of your knowledge. There are no right or wrong answers; we are only interested in your opinions.

Will my responses be kept anonymous?

Yes, all the information that you provide during the course of the study will be kept strictly confidential and in accordance with the Data Protection Act (1998). The responses you give will be assigned a participant number on submission and therefore all answers will be unidentifiable. The results will always be presented in a manner that preserves the anonymity of those taking part. The data analysis will be undertaken by the lead researcher, Jennifer Musto.

What will happen to the results?

The data will be analysed and the results will be included in the lead researcher's PhD thesis. The results will also be used to provide recommendations for how to improve the experiences of current and future doctors with SpLD in the workplace. A summary of the results will be sent to the Royal Colleges for forwarding onto their members. We hope to publish the overall results of this project in an academic journal and present the results at national conferences.

How long will the data be stored for?

At the end of the two-year research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of (maximum total data storage time: 12 years).

Who is organising and funding the study?

The study is being organised by the Norwich Medical School at the University of East Anglia. The study is funded by the University of East Anglia.

Who has reviewed the study?

The study has been reviewed by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster of the University of East Anglia. The study has been granted ethical approval by …………(to be completed when ethical approval has been granted)

Who can I contact for further information?

Please print this form out if you wish so that you can refer back to it later if you have any quires. Any request for further information does not commit you to taking part in the study.

If you would like further information about the study, please contact:

Jennifer Musto

PhD Student

Norwich Medical School

Faculty of Medicine and Health Sciences

University of East Anglia, Norwich, NR4 7TJ

Tel: 01603 593300
Email: j.musto@uea.ac.uk

If you would like general information on this topic then please refer to The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/).

Appendix 12 - Reminder recruitment email for the questionnaire Study 1

University of East Anglia

Dear Sir or Madam

This is a quick reminder that we are currently conducting a research study to investigate how doctors cope in clinical settings and how having a Specific Leaning Difficulty (SpLD) such as dyslexia may affect doctors and their work.

We would be grateful if you would complete the questionnaire at the below link.

LINK TO QUESTIONNAIRE

Your responses will be anonymised in our data analyses and reporting. You can find more information about this study in the Information Sheet below.

We would appreciate a reply by (date) please. If you have any queries please do not hesitate to contact me.

Jennifer Musto

PhD Student in Medical Education

Norwich Medical School

Faculty of Medicine and Health Sciences

University of East Anglia, Norwich, NR4 7TJ

Tel: 01603 593300

Email: j.musto@uea.ac.uk

In anticipation, sincere thanks for your valued response.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster, at the University of East Anglia.

Are you a doctor with Dyslexia or an SpLD
<u>OR</u> suspect that you have Dyslexia/SpLD?

If you are a medical doctor and have been diagnosed with, or suspect that you have, a Specific Learning Difficulty (SpLD) such as dyslexia.

AND

If you would be willing to spare up to 40 minutes of your time (once only) to take part in a telephone interview about any effects of dyslexia/SpLDs on you as a doctor, please contact us.

If you require further information about this research and the interview process or would like to participate please contact ...

<u>Jennifer Musto</u>

PhD Student in Medical Education,
Norwich Medical School, Faculty of Medicine & Health Sciences,
University of East Anglia, Norwich, NR4 7TJ

01603 593300   j.musto@uea.ac.uk

Appendix 14 - Ethics Approval letter for Study 1 and Study 2

Faculty of Medicine and Health Sciences Research Ethics Committee

UEA
University of East Anglia

Jennifer Musto
Norwich Medical School
University of East Anglia
Norwich
NR4 7TJ

Research & Enterprise Services
West Office (Science Building)
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ

Telephone: +44 (0) 1603 591574
Fax: 01603 591550
Email: fmh.ethics@uea.ac.uk

Web: www.uea.ac.uk/researchandenterprise

6 December 2011

Dear Jennifer,

Project title: An Investigation into how doctors cope with Specific Learning Difficulties in the workplace.   Reference: 2011/2012-03

The submission of amendments to your above proposal have been considered by the Chair of the Faculty Research Ethics Committee and we can confirm that your proposal has been approved.

Please could you ensure that any future amendments to either the protocol or documents submitted are notified to us in advance and also that any adverse events which occur during your project are reported to the Committee. Please could you also arrange to send us a report once your project is completed.

The Committee would like to wish you good luck with your project

Yours sincerely

Yvonne Kirkham
Project Officer

Appendix 15 - Interview Schedule (Study 2)

Impacts

1) How does having a Specific Learning Difficulty, such as dyslexia, impacts on your work as a doctor?

2) What do you believe are the advantages and/or weaknesses of having SpLD in the workplace?

Support/Strategies

3) Could you describe any formal or informal support that you use in the workplace

4) Is there any support that you don't have that you would like?*

Disclosure

5) Have you disclosed your disability and what made you decide on this?

6) Are you worried about how colleagues would react? (if applicable) How do you did your colleagues react or how do you think they would react?

7) How do you feel about other people knowing that you have dyslexia/a learning difficulty?

8) How do you think people would feel knowing that their doctor had SpLD?

9) Could you give us some examples please? (if applicable)

10) Would you consider telling a patient and if so under what circumstances?

11) How do you feel about working with medical students who have SpLD?

Career

12) Did having an SpLD have any affects on your career choice and if so how?

13) Could you name any particular specialty that you think would be better suited to a doctor with and SpLD and explain why you think this would be?

14) Is there anything else you would like to comment on or add that you think may be pertinent to this study?

        (* - question was added to the interview schedule during the interviewing process)

Appendix 16 - Participant Information Sheet:

Telephone Interview (Study 2)

University of East Anglia

Participant Information Sheet: Telephone Interview

Thank you for your interest in our research. Please note that expressing an interest in the study does not commit you to taking part. Before you decide whether or not to take part, we would like you to understand why the research is being done and what it will involve. So, please read the following information carefully and discuss it with others if you wish. Please feel free to contact me if there is anything that is not clear or if you would like more information. This Information Sheet is yours to keep. Thank you for reading this.

What is the purpose of the study?

In this study we wish to gather information about how having a Specific Learning Difficulty (SpLD) may impact on your work. The data gathered will be used to explore how doctors cope with having SpLD and how this may have shaped their practice and career progression.

This interview aims to explore the following areas:

- If you feel you have any difficulties or advantages in the workplace due to your SpLD.
- If you have disclosed that you have SpLD and the reasons for your decision.
- Any support that you may have in place, or would like to have in place.
- Effects that this may have had on your career choices.

Who will be taking part in the study?

We will be inviting any medical doctor who is registered with one of the medical Royal Colleges in the UK, who suspect that they have or who have been diagnosed with SpLD such as dyslexia to participate.

Do I have to take part?

No, it is completely up to you to decide if you want to take part. If you decide to take part you are still free to withdraw without giving a reason, up until the point where data analysis commences.

If I do decide to take part, what will I have to do?

You will be given a telephone call at a mutually convenient time and then participate in an interview during which you will be asked to discuss a series of questions about the effects of your SpLD. It is expected that the interview will last about 40 minutes. In order to participate, you will need to give us your permission to digitally record the discussion. The reason for recording the interview is to keep an accurate record of the discussion.

Are you testing my knowledge in some way?

No, this is not a test of your knowledge. There are no right or wrong answers, we are only interested in your opinions.

Will my responses be kept anonymous?

Yes, all the information that you provide during the course of the study will be kept strictly confidential and in accordance with the Data Protection Act (1998). The responses you give will only be identified by a participant number, and the results will always be presented in a manner that preserves the anonymity of those taking part. The data analysis will be undertaken by the interviewer, Jennifer Musto.

What will happen to the results?

The data will be analysed and the results will be included in the lead researcher's PhD thesis. The results will also be used to provide recommendations as to how to improve the experiences of current and future doctors with SpLD in the workplace. A summary of the results will be sent to the Royal Colleges for forwarding on to their members. We hope to publish the overall results of this project in an academic journal and present the results at national conferences.

How long will the data be stored for?

At the end of the two-year research project all data will be archived for a period of 10 years. After this time, all data will be securely disposed of (maximum total data storage time: 12 years).

Who is organising and funding the study?

The study is being organised by the Norwich Medical School at the University of East Anglia. The study is funded by the University of East Anglia.

Who has reviewed the study?

The study has been reviewed by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster of the University of East Anglia. The study has been granted ethical approval by …………(to be completed when ethical approval has been granted)

Who can I contact for further information?

Any request for further information does not commit you to taking part in the study. If you would like further information about the study, please contact:

Jennifer Musto

PhD Student

Norwich Medical School

Faculty of Medicine and Health Sciences

University of East Anglia, Norwich, NR4 7TJ

Tel: 01603 593300
Email: j.musto@uea.ac.uk

If you would like general information on this topic then please refer to The British Dyslexia Association (http://www.bdadyslexia.org.uk/) or Dyslexia Action (http://www.dyslexiaaction.org.uk/

Appendix 17 - Pro Forma for Telephone Interviews (Study 2)

Interview Checklist for Interviewer to complete before the interview commences

Participant number:_____

1) Brief study outline and interview procedure ☐

2) Tick when said)

    a. Ensure confidentiality ☐
    b. Digital recorded ☐
    c. Can end interview at any time ☐
    d. Do not have to answer any questions they are uncomfortable with ☐
    e. No right or wrong answers ☐
    f. Can ask the interviewer a question at any time ☐

3) Gain verbal consent to participant in the study ☐

Date........./........./.11

Time.....................

4) Personal Information

    1. Age: …………………

    2. Gender :　male　/　female

    3. Specialty: …………………………………

    4. County………………………………………….

    5. Medical school attended:………………………………………….

Diagnosed with or suspected......	Dyslexia	Dyspraxia	Dyscalculia	Other (please state)
School				
University				
Work				

D = diagnosed, S = suspected

Appendix 18 - Researcher Reflections

During the entire process of this qualitative stage, I have tried to eliminate any potential researcher bias from entering the design process, the interviewing of participants and analysis as much as possible. To prevent this during the design stages, the interview schedule based upon the results from Study 1 and previous research.

During the interviews, the schedule was stuck to and I tried to be aware that I was interviewing these doctors to find out the information required as per the interview schedule and also explore wider, relevant areas of interest raised by the participants. I was aware that in my previous employment role as a Dyslexia Assessor, where my job was to complete work based assessments with people where I had the prior knowledge that there was a problem with their work, my job was to find this problem then develop ways to solve this problem. Whereas with these interviews, I did not know whether the participants were experiencing any particular problems and so I was just exploring their responses in relation to the research questions and I was not assessing their responses, as I would have for an assessment.

As participation for the interview was all completely voluntary, those who had agreed to be interviewed were willing to open up and sharing their experiences. Many participants expressed their willingness and enthusiasm to take part and offered their support for any further or future research (which was encouraging). Most had read the participant information sheet, although a brief summary was given to a few participants who could not remember all it. Overall there were no particularly incidents or issues with any of the interviews. Participants were all genuinely interested in the research and un-phased by talking about their SpLD. No one become upset or refused to answer a question or thought any of the questions seemed inappropriate. For a couple of the participants I had to call back a second time when it was more convenient for them to talk, although this was normally with a time frame of 30 minutes from the initially organised interview time. The only issues that did arise with the interviews were as follows:

> Participant 1 – Unfortunately the participant had written their telephone number
> incorrectly in the email where we organised the interview. Through a process of

elimination, I tried various forms of the number where I thought an error could have occurred and eventually was able to get through to the participant. As this was my first interview, I was slightly more nervous and anxious due to the telephone number confusion. The participant was happy enough to proceed with the interview once I had explained why my telephone call was 25 minutes late. Everything went well in the interview and the participant talked freely about her experiences and the interview was unaffected by the confusion at the start.

Participant 4 – The interview with the participant went well and it was a good interview however, unfortunately, there was a malfunction with my digital voice recorder and the interview was not recorded. As a result the data could not be included in the subsequent analysis.

Participant 5 – This participant seems more than happy to take part in the interview however when discussing fears of discrimination they sounded as if they were beginning to get upset, so I softened my tone of voice a little and was a bit more careful about how I phrased my next question. However further on in to the interview, I realised that they were actually just yawning as they had just finished working a night shift. So apart from the misinterpretation of emotion, the interview went well.

After completing the interviews, the only particular issues that I experienced were when transcribing them. I had a little difficulty was when it came to understanding people's accents and the speed at which people talk and occasionally with some of medical terminology used, especially when acronyms were said. This meant that transcribing the interviews took a particularly long time, much more than was anticipated. During some of the transcription process, I used voice dictation software (Dragon Naturally Speaking version 9) in the hope that it would speed up the process, however it was not as efficient as I had hoped so I then reverted back to typing the transcripts. Although this transcription phase took an extensive amount of time, it did mean that I become familiar with the data and also all transcripts were checked against their original recording to check for accuracy of transcripts which again helped me become more acquainted with the data.

Going through the data set to search for these initial codes was an interesting but quite time consuming task. It became slightly easier as I worked through the data set and as more codes were developing and suitable codes had already been set up and I become more familiar the developing codes.

Some of the codes were very clear in which theme they would come under however others were not quite so clear cut, resulting in some themes having a large number of codes in them and other not so many. This process started to highlight some of the potential significant themes that were in the data, although they still needed refining and clarifying. This process of analysis continued, my secondary supervisor and I met up to check that we agreed with the coding and preliminary themes. Fortunately there were only a few areas where coding was disputed as it had been coding by error into the wrong theme. The final themes were developed from this analysis and subsequent discussion, and were finalised during the meeting.

I personally feel that the interviews and the process of Study 2 went well and although there were some difficulties faced in relation to transcribing data and technology errors, I am pleased with how the process has gone.

Free Nodes

	Name	Sources	References	Created
⊟	Career	10	45	JSM
	Secialilies suited to SpLDs	1	5	JSM
	Speciality not suited to SpLD	3	4	JSM
	Attitudes	5	13	JSM
⊟	Strenghts	10	35	JSM
	Tasks enjoyed	8	11	JSM
	Advantages	4	4	JSM
	Awareness	8	20	JSM
	Error	9	22	JSM
⊟	Coping stretgies in med school	10	33	JSM
	Extra time	2	4	JSM
⊟	Coping strategies in work	10	67	JSM
	Checking	2	3	JSM
	Formal asessments	2	8	JSM
	Effects on self	7	19	JSM
⊟	Formal strategies	4	10	JSM
	Software and technology	7	19	JSM
	Differences to other doctors	6	16	JSM
	Stupid or excuses	7	18	JSM
	Avoiding tasks	10	16	JSM
	Disability	6	16	JSM
⊟	Disclosure	10	40	JSM
	Telling a patient	8	13	JSM
	Non-problem areas	2	2	JSM
	Dyslexia or not	6	15	JSM
	Comfortable with self	3	3	JSM
	Traditional or PBL courses	6	10	JSM
	Level of dyslexia and IQ	4	8	JSM
	Disadvanteges	6	8	JSM
	Teaching students with splds	1	6	JSM
	Communication	4	5	JSM
	Working hard and 'get on with it'	7	23	JSM
	Compensating	3	5	JSM
	Patients focus	1	1	JSM
	Confidence	2	3	JSM
	Experiences when younger	3	10	JSM
	Stigma	1	1	JSM
⊟	Difficulties	2	3	JSM
	Everyday tasks	5	8	JSM
⊟	Difficulties as a Medical Stud	8	34	JSM
	Exams	2	2	JSM
	Difficulties in work	10	52	JSM
	Reading aloud	1	1	JSM
	Spelling	8	17	JSM
	Memory and processing	4	6	JSM
	General difficulties	2	4	JSM
⊟	Support	3	3	JSM
	Support in work	5	18	JSM
	Support in medical school	7	25	JSM
	Support in school	5	10	JSM
	Support that would be useful	3	8	JSM

Appendix 20 – Table of difficulties, impact on clinical tasks and coping strategies used by doctors with SpLd (Study 2)

Difficulties experienced by Doctors with SpLD in the workplace		Impacted Clinical tasks	Coping Strategy Used
The doctors were aware of their difficulties and concerned that they were potentially more likely to make an error therefore they introduced strategies to help reduce error potential and ensure patient safety.			
Writing	• Expressing their thoughts on paper • Additional time to write • Having to check work for error	• Patient notes • Letters • Forms • All other written work	• Constant and continual checking of work both by themselves and others • Completing work in a quiet calm location • Using specialist spell checkers • Text to speech software to aid with proofreading • Dictating on to a digital voice recorder and having secretarial support to type it up • Voice activated software to dictate directly on to a computer

Spelling	• Spelling medical terminology • Spelling medication names • General everyday spellings	• Affects all written work • Work takes longer to complete when having to find out how to spell a word or create another sentence that does not contain a particular word (not always possible if a medical term)	• Spell checker son computers (when they have them) • Asking colleagues • Predictive text functions on mobile phones of Google • Cover up errors with bad handwriting or blame on typos
Expressing themselves verbally	• Finding the rights words to say or being able to process what others had said quickly enough to be able to create an eloquent and succinct response was difficult	• Meetings • Team work • Handovers • Presentations	• Will practice and learn ways of talking through the presentations as opposed to reading it out
Organising skills	• Not 'naturally' organised: doctors reported make a large effort to be as organised as possible in their work	• Completing work to deadline • Meeting preparations • Organising workload	• Using spreadsheets to help plan time • Using diaries/planners/wall charts • Using electronic devices (PDAs/iPhones) to plan their time • Setting reminders and alarms for appointments and meetings

Orientation related weaknesses	• Distinguishing left from right /Clockwise from anti clockwise • Positions on a clock face • Having a sense of direction.	• Clinical examinations • Describing wounds for reports • Finding way round large hospital or to patients when out on visits	• Wearing their watch on a particular wrist • Visualising clock face and counting round the numbers
Short term memory and Processing	• Unable to retain information in their heads • Often have to write down notes in order to remember	• Struggle to remember patients' information so will have to ask the patient to repeat information extending their consultation time • Remembering general information	• Try to make things as practical, visual and hands on as possible as these are easier to remember • Mind mapping • Short hand notes • Created lists of things to do
Reading	• Reading what they think is written as opposed to what is actually written • Miss out lines of text or mixing up words or losing their place • Having to re-read to gain a better comprehension • Suffer from visual stress when reading	• The volume of emails that participants have to deal with takes long and potential misread important information • Do not spot their mistakes when proof reading and checking their work • Longer to read due to having to re-read	• Text to speech software (where the computer will read out text written on the computer) • Print work on to appropriately coloured paper • Use sans serif fonts when writing • Read aloud to self to help comprehension

Appendix 21 – Medical Students electronic Question (Study 3)

1. Information for participants

This questionnaire contains questions regarding how you cope with university-based and clincial learning and your perceptions of medical students and doctors with Specific Learning Difficulties (SpLDs) such as dyslexia, dyspraxia, dyscalculia or attention deficit hyperactivity disorder (ADHD).

Please note that if you complete this online questionnaire you are giving us your consent to use the data you provide for research purposes, which includes publication of your anonymised data in academic journals and other research publications.

If you have any queries about this before completing the questionnaire, please feel free to contact me.

Jennifer Musto

PhD Student in Medical Education
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich,
NR4 7TJ

01603 593300

J.Musto@uea.ac.uk

* 1. If you would like to read the participant information sheet click here to read it.

| If you have read and understood this information and give your consent to participant in this study, please tick here | ○ |

If you would like to complete the questionnaire now, please click on the 'NEXT' button to start. Thank you, your input is greatly appreciated.

If you would prefer NOT to complete the questionnaire then please select the exit button at the top of this page. Thank you.

2. Personal information

Please can you provide us with the following personal information.

1. Age

- ○ 17-19
- ○ 20-22
- ○ 23-25
- ○ 26-28
- ○ 29-31
- ○ 32-34
- ○ 35+

2. Gender

- ○ Male
- ○ Female

3. What academic year are you currently in?

- ○ 1st
- ○ 2nd
- ○ 3rd
- ○ 4th
- ○ 5th
- ○ Intercalating

4. Which Medical School do you attend?

- ○ UEA
- ○ Other

5. Are you on a undergraduate or postgraduate course?

- ○ Undergraduate
- ○ Postgraduate

Other (please specify)

_____

6. What type of course is this?

- ○ Traditional
- ○ Problem Based Learning (PBL)

Other (please specify)

_____

3. Coping with medical training and clinical learning

1. Please indicate your level of agreement with the following statements:

	Strongly Agree	Inclined to Agree	Neither	Inclined to Disagree	Strongly Disagree	N/A
My university work can be stressful	○	○	○	○	○	○
My clinical placements can be stressful	○	○	○	○	○	○
I cope well in stressful situations	○	○	○	○	○	○
I use strategies to help me cope with stress from my medical degree	○	○	○	○	○	○
I am doing well at my medical degree	○	○	○	○	○	○
I am often concerned that I will make a mistake with my work	○	○	○	○	○	○
I have been made to feel uncomfortable at university due to difficulties with my work	○	○	○	○	○	○
My medical school has a competitive environment	○	○	○	○	○	○
My clinical placements have a competitive environment	○	○	○	○	○	○

4. General skills

1. Please indicate how you rate yourself on the following skills

	Very good	Good	Average	Poor	Very poor	N/A
Remembering information for short periods of time	○	○	○	○	○	○
Remembering information for long periods of time	○	○	○	○	○	○
Organising your workload	○	○	○	○	○	○
Spelling of medical terms	○	○	○	○	○	○
Spelling drug names	○	○	○	○	○	○
General overall spelling ability	○	○	○	○	○	○
Writing by hand	○	○	○	○	○	○
Writing legibility	○	○	○	○	○	○
Typing on a computer	○	○	○	○	○	○
Reading	○	○	○	○	○	○
Reading comprehension	○	○	○	○	○	○
Processing information that you have heard	○	○	○	○	○	○
Processing visual information	○	○	○	○	○	○
Expressing your thoughts verbally	○	○	○	○	○	○
Expressing your thoughts in writing	○	○	○	○	○	○
Time management	○	○	○	○	○	○
Working with numbers	○	○	○	○	○	○

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5. Studying and Clinical tasks

1. Please indicate how you would rate yourself on the following work tasks.

	Very good	Good	Average	Poor	Very poor	N/A
Examining patients	○	○	○	○	○	○
Diagnostic skills during consultation	○	○	○	○	○	○
Prescribing medication	○	○	○	○	○	○
Record keeping	○	○	○	○	○	○
Practical clinical skills	○	○	○	○	○	○
Taking patient information	○	○	○	○	○	○
Team working and relationships with staff	○	○	○	○	○	○
Being aware of your limitations	○	○	○	○	○	○
Responding effectively to emergencies	○	○	○	○	○	○
Following safe procedures	○	○	○	○	○	○
Being responsible for your own learning	○	○	○	○	○	○
Discussing treatment options, including relative risks and benefits, with patients	○	○	○	○	○	○
Explaining medicines to patients	○	○	○	○	○	○

6. Studying and Clinical tasks

1. Please indicate how you would rate yourself on the following work tasks.

	Very good	Good	Average	Poor	Very poor	N/A
Completing drug calculations	○	○	○	○	○	○
Communicating with patient's family/carers	○	○	○	○	○	○
Communicating with patients	○	○	○	○	○	○
Communicating with peers	○	○	○	○	○	○
Communicating with tutors	○	○	○	○	○	○
Communicating in writing	○	○	○	○	○	○
Understanding medical ethical principles, including confidentiality	○	○	○	○	○	○
Ability to deal with own stress	○	○	○	○	○	○
Coping with responsibility	○	○	○	○	○	○
Coping with uncertainty	○	○	○	○	○	○
Working independently	○	○	○	○	○	○
Being empathetic	○	○	○	○	○	○
Supporting patients	○	○	○	○	○	○
Supporting peers	○	○	○	○	○	○

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7. Perceptions of Specific Learning Difficulties (SpLDs)

1. Please indicate your level of agreement with the following statements:

	Strongly agree	Inclined to agree	Neither	Inclined to disagree	Strongly disagree
Overall having a disability would impact negatively upon working successfully as a doctor	○	○	○	○	○
A doctor with dyslexia/SpLDs would have more weaknesses in the workplace	○	○	○	○	○
A doctor with dyslexia/SpLDs would have more strengths in the workplace	○	○	○	○	○
A doctor with dyslexia/SpLDs would be more prone to making errors	○	○	○	○	○
A person with dyslexia/SpLDs could make a successful doctor	○	○	○	○	○
A doctor with dyslexia/SpLDs should tell their patients that they have dyslexia/SpLDs	○	○	○	○	○
A doctor with dyslexia/SpLDs should tell their colleagues that they have dyslexia/SpLDs	○	○	○	○	○
Patients would be concerned about being treated by a doctor with dyslexia/SpLDs	○	○	○	○	○
Others members of staff would treat a doctor with dyslexia/SpLDs differently	○	○	○	○	○
I would have concerns about working with a doctor who had dyslexia/SpLDs	○	○	○	○	○
It is appropriate for a doctor with dyslexia/SpLDs to use support strategies in the workplace	○	○	○	○	○
Medical students with dyslexia/SpLDs should be given support during medical school if needed	○	○	○	○	○
Medical students with dyslexia/SpLDs would be less likely to complete a medical degree	○	○	○	○	○
Medical students with dyslexia/SpLDs should tell the medical school that they have dyslexia/SpLDs	○	○	○	○	○
Medical students with dyslexia/SpLDs should tell the fellow students school that they have dyslexia/SpLDs	○	○	○	○	○
Medical student should disclose their dyslexia/SpLD to the NHS when applying for a job	○	○	○	○	○

2. I know doctors who have dyslexia/SpLDs

○ Yes

○ No

3. I know medical students who have dyslexia/SpLDs

○ Yes

○ No

8. Support

1. Do you use any assistive software?

☐ Voice activated

☐ Text to speech/Screen readers

☐ Mind mapping

☐ Spell checks

☐ No

Other (please specify)

2. Have any issues with your university work ever been raised in relation to errors or poor performance?

○ Yes

○ No

3. Have any issues with your clinical skills ever been raised in relation to errors or poor performance?

○ Yes

○ No

4. Do you use any informal strategies to help you with your university or clinical work? (e.g. unofficial help from others/colleagues or other aids, systems or strategies put in place by yourself)?

○ No

○ Yes

○ Sometimes

If yes or Others, please state

5. Please indicate the extent to which you feel you are currently coping at medical school.

○ Extremely well

○ Very well

○ Moderately well

○ Slightly well

○ Not at all

9. Career

1. How important are each of the following factors in your future career choice?

	Very important positively	Important positively	Unimportant	Important negatively	Very important negatively
Personal preference	○	○	○	○	○
Speciality characteristics	○	○	○	○	○
Intellectual content of speciality	○	○	○	○	○
Speciality training process	○	○	○	○	○
Intellectual ability	○	○	○	○	○
Career opportunity	○	○	○	○	○
Lifestyle after completing training	○	○	○	○	○
Role model	○	○	○	○	○

Other (please specify)

2. Which medical field would you like to work in in the future? (tick all that apply)

- [ ] Anaesthesia
- [ ] Intensive care medicine
- [ ] Emergency medicine
- [ ] General Practice
- [ ] General Medicine
- [ ] Obstetrics and Gynaecology
- [ ] Occupational Medicine
- [ ] Ophthalmology
- [ ] Paediatrics
- [ ] Pathology
- [ ] Psychiatry
- [ ] Public-health
- [ ] Radiology
- [ ] Surgery
- [ ] Don't know yet

Other (please specify)

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3. Do you think that there are certain areas of medicine that are better suited to those with dyslexia/specific learning difficulties?

○ Yes

○ No

If yes, please state

10. Disability information

1. Do you consider yourself to have a specific learning difficulty (SpLD), such as: dyslexia, dyspraxia, dyscalculia or attention deficit hyperactivity disorder (ADHD)?

◯ Yes - diagnosed

◯ Yes - undiagnosed

◯ No

11. Disability information

1. Please provide details about when you were diagnosed and with which specific learning difficulties.

	Dyslexia	Dyspraxia	Dyscalculia	ADD	ADHD
School	☐	☐	☐	☐	☐
University	☐	☐	☐	☐	☐
Work	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Other diagnosis

_____

2. Overall how severe would you rate your specific learning difficulty

○ Very mild

○ Mild

○ Moderate

○ Severe

○ Very Severe

3. Do you consider yourself to be disabled?

○ Yes

○ No

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12. Other disabilities

1. Do you consider yourself to be disabled because of your specific learning difficulty?

◯ Yes

◯ No

13. Overall effects of dyslexia/Specific Learning Difficulties

1. Please rate the following

	Always	Usually	Sometimes	Rarely	Never
Does having dyslexia/SpLDs impact on your overall life?	○	○	○	○	○
Does having dyslexia/SpLDs impact on your medical course?	○	○	○	○	○
Do you try to avoid certain aspects of your course because of having dyslexia/SpLDs?	○	○	○	○	○

2. If there are aspects of your medical degree you try to avoid, please state what they are.

3. Have you sought help or support for your dyslexia/SpLD from your medical school?

○ Yes and I use the support offered

○ Yes but I do not use the support offered

○ No

Can you explain why you have or have not.

4. Have you developed any new coping straegies since starting medical school?

○ No

○ Yes

If 'yes' please explain

5. Please rate how much you agree with each of the following statements

	Strongly Agree	Inclined to Agree	Neither	Inclined to disagree	Strongly disagree
I sometimes try to hide my dyslexia/SpLD	○	○	○	○	○
I think that others will judge me for having dyslexia/SpLDs	○	○	○	○	○
Having dyslexia/SpLDs makes me more prone to making errors	○	○	○	○	○
Having dyslexia/SpLDs will make me a better doctor	○	○	○	○	○

6. Do you anticipate experiencing any SpLD/dyslexic difficulties when you are qualified and in employment?

○ Yes

○ No

○ Maybe

If 'yes' please explain

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7. Do you expect to have support when qualified?

◯ Yes

◯ No

◯ Maybe

14. Disclosure

1. Have you disclosed your dyslexia/specific learning difficulty to the following?

- ☐ Staff in the Medical School
- ☐ Other non-MED University staff
- ☐ Clinical teaching staff at your GP and/ or secondary care placement
- ☐ Fellow students
- ☐ Friends
- ☐ Family
- ☐ Patients

Other (please specify)

2. Did you disclose having dyslexia/specific learning difficulties when you applied to medical school?

- ○ Yes
- ○ No

3. Please explain why you made the disclosure decision you did.

15. Thank you

Thank you for taking the time to complete this questionnaire, your participation is greatly appreciated.

If you have any queries about this research, please feel free to contact me

Jennifer Musto

PhD Student in Medical Education
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich, NR4 7TJ

01603 593300
J.Musto@uea.ac.uk

If you would like general information on this topic then please see UCAS (http://www.ucas.ac.uk/students/wheretostart/disabledstudents) . Or contact your Disability Team at your University who are responsible for the provision of information and advice and for co-ordinating the support needed.

Appendix 22 - Email invitation UEA medical students (Study 3)

Dear MB/BS Student

We are currently conducting a research study to investigate how medical students cope in a university and clinical settings generally, and how having a Specific Learning Difficulty (SpLD) such as dyslexia may affect medical students and their work. We are inviting all current medical students to participate. Please note, you do not need to have a Specific Learning Difficulty to participate.

We would be grateful if you would complete the questionnaire at the below link.

https://www.surveymonkey.com/s/medicalstudentssurvey

Your responses will be anonymised in our data analyses and reporting. You can find more information about this study in the attached Information sheet.

We will email one reminder to you before the return deadline. If you have any queries please do not hesitate to contact me.

Jennifer Musto
PhD Student in Medical Education
Norwich Medical School
University of East Anglia, Norwich, NR4 7TJ
Tel: 01603 593300
Email: j.musto@uea.ac.uk

In anticipation, sincere thanks for your valued response.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster at the University of East Anglia.

If you would like information on this topic then please contact The **Learning Enhancement Team at UEA (**http://www.uea.ac.uk/services/students/let**)** who can offer confidential advice and support or please see the British Medical Association (http://www.bma.org.uk/equality_diversity/disability/index.jsp).

Appendix 23 - Participant information sheet for Study 3

Participant Information Sheet: Online Questionnaire

Thank you for your interest in our research. Please note that expressing an interest in the study does not commit you to taking part. Before you decide whether or not to take part, we would like you to understand why the research is being done and what it will involve. So, please read the following information carefully and discuss it with others if you wish. Please feel free to contact me if there is anything that is not clear or if you would like more information. This Information Sheet is yours to keep. Thank you for reading this.

What is the purpose of the study?

In this study we wish to gather information about how medical students cope whilst studying at university and in a clinical environment. It also explores this in relation to the experiences of doctors with a Specific Learning Difficulty (SpLD) and how this may impact upon working as a doctor. The data gathered will be used to explore how medical students having SpLD cope compared to those who do not.

This questionnaire aims to explore the following areas:
• How medical student's cope in the cope with their university-based and clinical learning
• If you have any difficulties or advantages.
• How you think having an SpLD may impact on being a doctor.

Who will be taking part in the study?

We will be inviting any medical students who are registered with the Norwich Medical School and students registered with the BMA Medical Students Committee to complete the online questionnaire.

Do I have to take part?

No, it is completely up to you to decide if you want to take part. All the information about the study is available via a link on the first page of the questionnaire and you can contact the researcher if you have any questions. If you decide to take part you are still free to withdraw at any time without giving a reason, just select the 'exit questionnaire' button at the top of the page. However, your responses up to that point will be recorded, unless you go back through the questionnaire and delete your own responses. All data is

recorded anonymously, however if less than a 1/3 of a questionnaire has been completed, then your data will not be used in analysis.

If I do decide to take part, what will I have to do?

If you do decide to take part you can complete the questionnaire by clicking on the link in the original email.

What if I have any worries or concerns by participating in the study?

If you care caused any worries or concerns during this study, please contact the lead researcher (details below) and they will guide you to a local contact who could deal suitably with your particular concerns.

Are you testing my knowledge in some way?

No, this is not a test of your knowledge. There are no right or wrong answers; we are only interested in your opinions.

Will my responses be kept anonymous?

Yes, all the information that you provide during the course of the study will be kept strictly confidential and in accordance with the Data Protection Act (1998). The responses you give will be assigned a participant number on submission and therefore all answers will be unidentifiable and the results will always be presented in a manner that preserves the anonymity of those taking part. The data analysis will be undertaken by the lead researcher, Jennifer Musto.

What will happen to the results?

The results will be used to provide recommendations for how to improve the experiences of future and current doctors with SpLD in the workplace. We hope to publish the overall results of this project in an academic journal and present the results at national conferences.

How long will the data be stored for?

At the end of the two-year research period all data will be archived for a period of 10 years. After this time, all data will be securely disposed of (maximum total data storage time: 12 years).

Who is organising and funding the study?

The study is being run by Ms Jennifer Musto, a Postgraduate Research student at the Norwich Medical School, University of East Anglia (UEA), under close supervision of Dr Sandra Gibson, Dr Susan Miles & Professor Sam Leinster (Norwich Medical School, UEA). The study is being funded by a UEA PhD studentship.

Who has reviewed the study?

The study has been reviewed by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster of the University of East Anglia. The study has been granted ethical approval by The University of East Anglia, Faculty of Health Ethics Committee.

What if any issues arise during my involvement in the project which cause me concern?

If, for any reason, you have any further concerns or wish to make a complaint regarding any aspect of your involvement please contact Dr Sandra Gibson (Academic Supervisor) from the University of East Anglia. Contact detail below.

If, for any reason, you have any concerns or wish to make a complaint regarding any issues outside of this study, relating to your disability, please follow your institution or hospital complaint procedures.

Who can I contact for further information?

Please print this form out if you wish so that you can refer back to it later if you have any queries. Any request for further information does not commit you to taking part in the study.

If you would like further information about the study, please contact:

Miss Jennifer Musto	**Dr Sandra Gibson**
PhD Student	Academic Supervisor
Norwich Medical School	Norwich Medical School
Faculty of Medicine and Health Sciences	Faculty of Medicine and Health Sciences
University of East Anglia, Norwich, NR4 7TJ	University of East Anglia, Norwich, NR4 7TJ
Tel: 01603 593300	Tel: 01603 591277
Email: j.musto@uea.ac.uk	Email: s.gibson@uea.ac.uk

If you would like information on this topic then please contact The **Learning Enhancement Team at UEA (**http://www.uea.ac.uk/services/students/let**)** who can offer confidential advice and support or please see the British Medical Association (http://www.bma.org.uk/equality_diversity/disability/index.jsp)

Appendix 24 - Reminder email for Study 3

Faculty of Health,
School of Medicine, Health Policy and Practice

Dear MB/BS Student

This is a quick reminder that we are currently conducting a research study to investigate how medical students cope in clinical settings and how having a Specific Learning Difficulty (SpLD) such as dyslexia may affect medical students' studies and clinical learning. To remind you, you don't need to have a Specific Learning Difficulty to take part.

We would be grateful if you would complete the questionnaire at the below link.

https://www.surveymonkey.com/s/medicalstudentssurvey

Your responses will be anonymised in our data analyses and reporting. You can find more information about this study in the Information Sheet below.

We would appreciate a reply by 1st August please. If you have any queries please do not hesitate to contact me.

Jennifer Musto
PhD Student in Medical Education
Norwich Medical School
Faculty of Medicine and Health Sciences
University of East Anglia, Norwich, NR4 7TJ
Tel: 01603 593300
Email: j.musto@uea.ac.uk

In anticipation, sincere thanks for your valued response.

Jennifer Musto

This is part of a PhD project that is being supervised by Dr Sandra Gibson, Dr Susan Miles and Professor Sam Leinster, at the University of East Anglia.

If you would like information on this topic then please contact The **Learning Enhancement Team at UEA (**http://www.uea.ac.uk/services/students/let**)** who can offer confidential advice and support or please see the British Medical Association (http://www.bma.org.uk/equality_diversity/disability/index.jsp).

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