

## Original Articles

# Hong Kong Nursing Students' Knowledge on Dyslexia: Implications for Nursing Education and Clinical Practices

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### Abstract

**Background:** Nurses' dyslexia knowledge is crucial for early detection of dyslexia before referring suspected children for further assessment. This study aims to obtain a profile of nursing students' knowledge on dyslexia so as to explore the implications for nursing education for both nursing students and practicing nurses as well as for current and future nursing practices. **Method:** Nursing students (N=133) were administered 10 true/false questions on dyslexia. **Results:** They had inadequate knowledge on dyslexia and even had some common misconceptions such as regarding hyperactive students as having various degree of dyslexia and all dyslexic students as suffering from problem of inattention. **Conclusions:** Researchers and educators on dyslexia should endeavour to keep nursing students and practising nurses updated with information on dyslexia to facilitate early detection and interventions.

### Key words

Dyslexia; Hong Kong; Knowledge; Nursing students

### Introduction

There is growing awareness of the problems and needs of children with dyslexia in Hong Kong since the 1990s. Early detection and early intervention may improve its prognosis. Based on the results from the past two decades of intensive research on dyslexia, the definition of this problem is:<sup>1</sup>

*Dyslexia is a specific learning disability that is neurobiological in origin. It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.*

A precise definition of dyslexia is crucial for at least two reasons. One is that accurate identification of dyslexia would not be possible without specifying its key symptoms and characteristics. Another is that early intervention of dyslexia must be based on an informed mastery of the difficulties encountered by those with reading disabilities. In contrast, insufficient definitions impose serious consequences. Inequities in who should and who should not receive special training may occur because of unclear and unjustified basis for assigning resources and support for the sufferers. Besides, vague descriptions of the nature of dyslexia fail to provide guidelines for the impaired component(s) to be identified and hence the need for remediation.<sup>2</sup>

As dyslexia is often termed as "hidden disability" due to the discrepancy between the intellectual abilities and actual reading and writing performance, under-diagnosis and hence deprivation of early identification and early interventions such as appropriate educational and social support from teachers and parents usually exist.<sup>3</sup> Reading skills of 90% to 95% of poor readers receiving early intervention programmes provided by well-trained teachers could be improved to average reading levels. However, if such intervention was delayed to the age of nine years, about 75% of them continued to have difficulties in reading throughout their high school years.<sup>4</sup>

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When parents suspect their children of dyslexia, it is quite common and natural for them to want to know more about its causes, treatment/interventions and prognosis. Accurate and reliable information on dyslexia is best provided by well-informed professionals. While various personnel are involved in identification of dyslexia, nurses are usually one of the most readily accessible frontline professionals who provide advices for children's health-related problems. Hence, nurses with knowledge on dyslexia act as a gate keeper for early detection of dyslexia before referring suspected children for further assessment.

In Hong Kong, the Student Health Service of the Department of Health provides comprehensive health programmes for primary and secondary school students according to their needs at various developmental stages. Nurses there are responsible for physical examination and health assessment, individual counselling and health education activities as well as referring students with problems to Special Assessment Centre or specialities for further assessment and management. Children suspected of dyslexia can be referred for comprehensive child assessment provided by Department of Health, Education and Manpower Bureau or private agencies.<sup>5</sup> As the knowledge on dyslexia of many parents and local health-care professionals is limited, the report rate of dyslexia remains low in Hong Kong. Currently, there is no reliable prevalence rate of dyslexia.<sup>3</sup> However, over 80% of primary and secondary school teachers come into contact with dyslexic students in their classes. Although primary and secondary school teachers have adequate basic knowledge on dyslexia, the majority desired more in-depth training on its nature and management.<sup>6</sup> This reflects that there has been a lack of training on dyslexia for personnel working with children which may have made early identification and subsequent interventions of dyslexia less possible.

There is a need for studies in the knowledge on dyslexia among health-care professionals and parents. This study aims to get a profile of nursing students' knowledge on dyslexia by using 10 true/false questions covering basic knowledge on dyslexia. It helps to find out the implications for nursing education for both nursing students and practicing nurses as well as for current and future nursing practices.

## Method

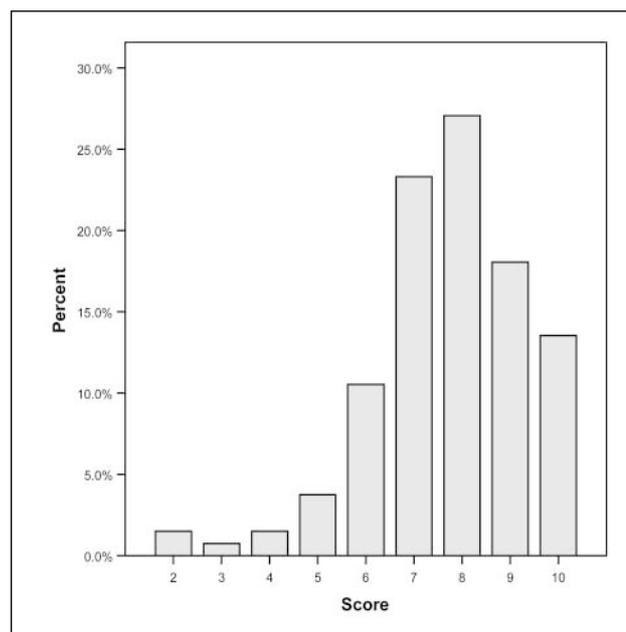
Students (N=133) studying third year of nursing bachelor degree programme (graduates eligible for registration as

registered nurse in Hong Kong) in Hong Kong were recruited by convenience sampling to anonymously and independently (without any discussion) answer 10 true/false questions on dyslexia (Appendix). The questions were designed by Dr. Catherine Lam, a leading advocate for dyslexics in Hong Kong and the consultant of Child Assessment Service of Department of Health. They covered basic knowledge on dyslexia and were adopted in a local study on Hong Kong teachers' dyslexia knowledge.<sup>6</sup> Nevertheless, further investigation of the psychometric properties of this set of questions such as content validity and construct validity based on the most updated definition of dyslexia is recommended.

## Results

One hundred and thirty-three students completed all 10 T/F questions with each correct answer scoring one. The mean (SD) and median score are 7.71 (1.62) and 8 respectively. The distribution of the scores is negatively skewed (-0.885) with the highest being 10 and the lowest two. The cumulative percentage of the scores is shown in Figure 1.

Figure 2 shows the percentage of respondents with the correct answer in each of the 10 questions. It ranges from 94.7% in Questions 6 and 7 to 39.1% in Question 10.

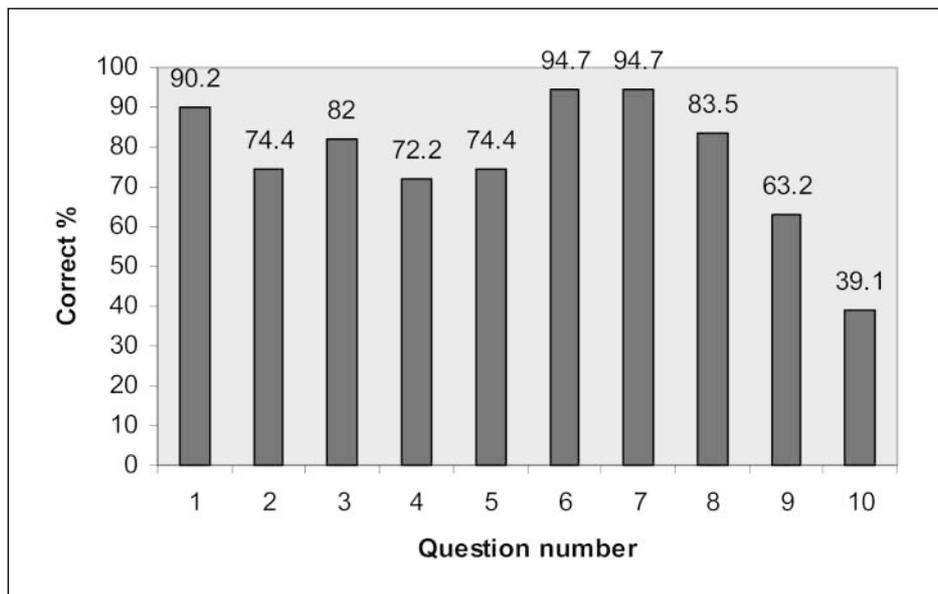


**Figure 1** Score distribution of the questions (one score per each correct answer).

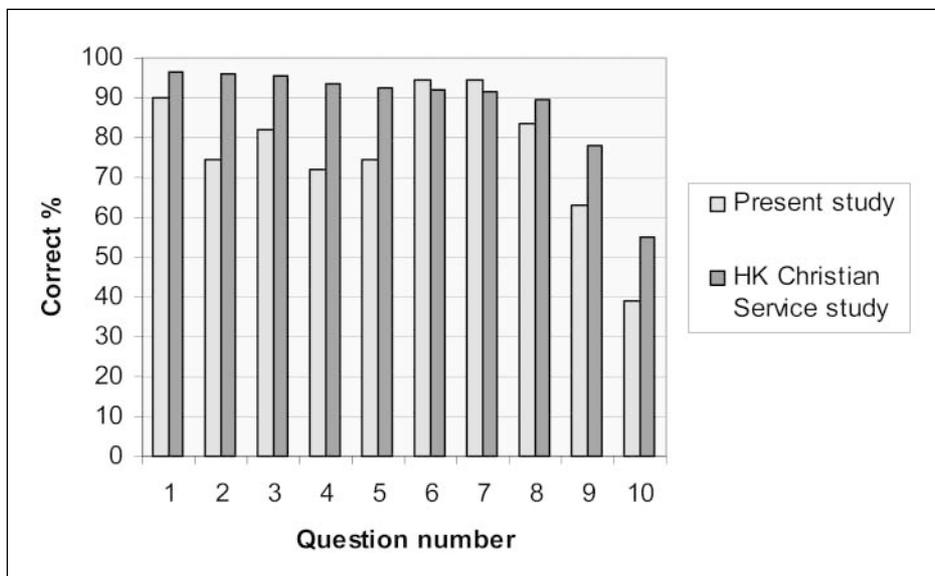
**Discussion**

The present study investigated on the profile of nursing students' knowledge on dyslexia. The mean and median score (7.71 and 8) among nursing students of this study are lower than that observed in a similar study using the same questionnaire among teachers.<sup>6</sup> In the latter study, more than 90% of the teachers gave a correct answer in eight out of ten questions whereas of the nursing students scored more

than 90% in only three out of ten questions (Figure 3). Performance of the teachers is better than that of the nursing students in Questions 3, 4 and 5. These questions are respectively "Dyslexia is related to a lack of parents' supervision", "Dyslexia is related to a lack of motivation for learning", "Dyslexia will usually improve when student grows up". This is not unexpected as teachers are more informed about such situations. Teachers usually have regular contact with parents for discussing students'



**Figure 2** Profile of percentage of respondents with the correct answer to each question.



**Figure 3** Comparison with a similar local study of Hong Kong Christian Service (2005).

academic performance. They are probably aware that no strong correlation exists between parents' supervision and the occurrence of dyslexia. In other words, dyslexia does occur irrespective of whether parent supervision is adequate or not. Similarly, teachers can readily notice that dyslexia occurs and does not improve though there are children who are eager to learn.

As for Question 2 stating that "Medication is effective for dyslexia", over 90% of the teachers in that study but only 74.4% of the nursing students in the present study answered the question correctly (realising the statement was false). Nursing students are expected to be more familiar than teachers with drug therapy but surprisingly over a quarter of them have the misconceived notion that medication is effective in the treatment for dyslexia.

In both studies considerable lower percentage of respondents gave correct answers to Questions 9 and 10 (77.8% and 55.0% for teachers respectively; 63.2% and 39.1% for nursing students respectively). These questions are respectively "Hyperactive students will have various degree of dyslexia" and "All dyslexic students suffer problem of inattention" and the correct answers for both should be "false". The possible explanation for the misconception is likely to be the common occurrence of attention-deficit/hyperactivity disorder (ADHD) and dyslexia and the relationship between the two disorders is mistakenly perceived to be causal instead of comorbid.

The comorbidity of ADHD and dyslexia is well recognised. Most of the hypotheses regarding this comorbidity such as ascertainment biases in clinic-referred samples, common method variance in the measures for defining the disorders, symptom overlap between the disorders or rater bias have been rejected based on the existing evidence.<sup>7</sup>

However, the distinction between symptoms of inattention and hyperactivity-impulsivity in DSM-IV makes the interpretation of comorbidity of dyslexia and ADHD more complex. Inattention rather than hyperactivity-impulsivity is found to be more strongly correlated with reading deficits. Genetic influences can primarily account for the correlation between reading deficits and inattention symptoms rather than for that between reading deficits and hyperactivity-impulsivity. In contrast, a small study revealed that bivariate linkage to Chromosome 6p was less strong for reading deficits and inattention symptoms than for reading deficits and hyperactivity-impulsivity.<sup>7</sup>

A meta-analysis study indicates that pharmacological interventions (mainly the use of stimulants) are more effective than non-pharmacological interventions in treating ADHD but still not significant in improving academic performance.<sup>8</sup> As ADHD is wrongly perceived to be the cause of dyslexia and medication is found to be effective for ADHD, one may conclude that medication will thus be effective for dyslexia. The possible reason of better performance of teachers in this question is that they may misunderstand that the medication prescribed is used for the co-existing ADHD problems. Hence, when the teachers notice that dyslexic problems cannot be improved by the medication, they may well believe that the medication is ineffective for dyslexia.

## Recommendations and Conclusion

There have been growing public awareness of dyslexia in children. Nurses are usually the most readily accessible frontline professionals who provide advices for children's health-related problems. Hence, the knowledge profile of dyslexia among practising nurses in student health service should be investigated for at least two purposes. One is that training can be tailor made to fill in the knowledge gap, clarify any misconception(s) or update the knowledge of dyslexia. Another is to examine the impacts of practicing nurses' dyslexia knowledge on the identification of suspected dyslexic children for further assessment. Nursing students' knowledge on dyslexia is found to be unsatisfactory in this study. It is recommended that nursing education curriculum should include the basic knowledge on dyslexia to prepare them to be alerted to the signs of dyslexia in future practice. Hence, early detection and early interventions of dyslexia become possible which may then enhance its prognosis.

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## Appendix

### 讀寫障礙認識調查

問題	T/F
1. 有讀寫障礙的學生的智商比一般學生低	F
2. 讀寫障礙是可透過藥物治療去改善	F
3. 讀寫障礙的出現與父母缺乏督促有關	F
4. 讀寫障礙的出現與學生缺乏學習動機有關	F
5. 讀寫障礙大多數會隨著學生年齡增長而自然地漸漸消失	F
6. 讀寫障礙是特殊學習障礙的一種	T
7. 有讀寫障礙的學生通常在認字及默書有極差的表現	T
8. 對英文讀寫有困難，但對中文沒有類似困難，應該是沒有讀寫障礙的	F
9. 有過度活躍的學生會有不同程度的讀寫障礙	F
10. 有讀寫障礙的學生都有專注力缺乏的問題	F

(Extraced from 香港基督教服務處學校社會工作服務(2005))