

## REVIEW ARTICLE

# Preschool Teachers' Knowledge on Dyslexia: A Malaysian Experience

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## ABSTRACT

**Introduction:** Teachers play a vital role in identifying students with dyslexia. The acquisition of this knowledge will help teachers to classify students who are at risk of dyslexia. The objective of this study is to identify the level of teachers' knowledge about dyslexia that comprises of its general knowledge, diagnosis, symptoms and treatments. A cross sectional study was done upon 138 preschool teachers. This research was conducted by using 'Knowledge and Beliefs about Developmental Dyslexia' questionnaire, which consists of 36 items with 3 Likert scale questions. Findings revealed that the level of general knowledge possessed by the pre-school teachers was relatively different based on the construct even though they have respectively received the Diploma in Early Childhood Education. On the same hand, most of the respondents were found to be having higher understanding on the general knowledge about dyslexia compared to their understanding on the symptoms, diagnosis and the treatments.

**Keywords:** Preschool, dyslexia, knowledge, preschool teacher

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## INTRODUCTION

Dyslexia is not a pathological disease, yet it is an integral an internal disorder in children that prevents language development during the process of learning. Dyslexia is a learning disability that usually occurs in all levels of education. The prevalence percentage for dyslexia is quite significant from students' population (1). Dyslexia is also a specific reading disability among children. This has been supported by Diagnostic and Statistical Manual of Mental Disorders(2) stating that dyslexia is a reading disability that comprises of two characteristics, which are an individual's poor reading achievement that differs in age, education and intelligence, as well as reading disability that affects an individual's achievements in school and their daily activities. It is

important to improve preschool students' education in order to face the 4th industrial revolution challenge (4IR) and it demands the paradigm shift by the parties concerned to see this issue from multidimensional dimensions. Although Ministry of Education Malaysia (MOE) has always been given their attention and priority in this issue, the literacy and numeracy skills among dyslexic children are still worrying. In order to overcome this language literacy disorder, evaluation and preliminary assessment are imperative to be done upon the pre school students who are risk to have dyslexia. According Shaywitz (3),dyslexia is one of the most common learning disability with a prevalence ranging from 3 to 17.5% among school age children. Dyslexia affects basic skills such as reading, writing, speaking, and listening. In Malaysia, there are 314 000 dyslexic students (4). This amount will continuously increase if there is no preliminary assessment at the preschool level. A study conducted by Siti & Aiza (5) highlighted that there are a lot of primary school students in recovery classes who are suffering from 3M problems (reading, writing and counting). Some of the questions that

aroused are, does this problem start when these students were still in preschool? Is it because the teachers fail in identifying students that are at risk of dyslexia? Is teachers' limited knowledge about dyslexia making them to use the 'Wait To Fail' model in which school authorities are less progressive to identify these students with learning disabilities until they failed to demonstrate the agreeable motivation in academic performance? This can be proven from a report by LINUS NKRA Portal Selangor District Education Office 2016 (6) which found out that there are still two percent of Year 4 students (15 600 students) in Hulu Langat district that are still having difficulties in mastering the 3M skills. This phenomenon can be associated with teachers' knowledge about students' with learning disabilities like dyslexia that could directly affect the the learning motivation and performance.

Besides parents, it is incumbent upon teachers to have a share in handling students who are risk to have dyslexia. Teachers are responsible in identifying students that are at risk of learning disability like dyslexia during their teaching session (7). Teachers' mastery towards the knowledge about dyslexia is also the main factor in identifying these kind of students. According to Sax & Kautz (8), teachers need to have basic knowledge about students' learning disability like dyslexia since teachers always interact with students in large numbers. The acquisition of this knowledge will help teachers in identifying learning disabilities of students that are at risk of dyslexia. Hence, it is important to conduct a study to identify the level of teachers' knowledge about dyslexia that comprises of its general knowledge, the diagnosis, as well as the treatments. It is important for teachers to understand about dyslexia as it will help them in figuring out students with learning disabilities and recognizing children's level of mental health.

## METHODOLOGY

A cross-sectional survey method was used to assess preschool teachers knowledge regarding dyslexia. This study was conducted in KEMAS preschool Hulu Langat Selangor and it was chosen randomly among 10 districts in Selangor. The total amount of 138 preschool teachers was selected randomly. All of them are sharing the same criteria such as having Malaysia Education Diploma in early childhood education and possessing more than 3 years of teaching experience. In order to evaluate the level of teachers' knowledge about dyslexia, "A Scale Knowledge and Belief about Developmental Dyslexia" by Soriano et al. (14) was employed. This instrument was undergone back-to-back- translation as the validation process to Malay Language. There are two parts in this questionnaire which are Part A (Teachers' Demographics) and Part B (Teachers' Knowledge about Dyslexia) This instrument consists of 36 items as a whole with three underlying

constructs which are general knowledge about dyslexia, symptom/diagnosis and treatments. The value of reliability of this questionnaire is 0.84. There are three responses on every statement, which are "true", "false" and "do not know". The "true" means correct answer and knowledgeable regarding dyslexia, "false" means inadequate information regarding dyslexia while "do not know" means common misconceptions about dyslexia. Written consents were obtained from all respondents who involved in the study. The data collected from the questionnaire are analysed using Statistical Package for Social Science (SPSS) version 22.0.

## RESULTS

Respondents of this study are 138 pre-school teachers and all of them are female. The age ranged 21 to 60 years old and majority of them (54%) were between 26 to 40 years old. Majority of the teachers, which are 127 of them (92%) have diploma certificates. While half of them, which are 70 teachers (51%) have 1 to 10 years teaching experience. The teachers' socio-demographic characteristics are shown in Table I.

**Table I:** Demographic characteristics of the respondents

Variable (N=138)	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	0	0
Female	138	100
<b>Age (year)</b>		
21 – 25	7	5
26 – 30	30	22
31 – 35	28	20
36 – 40	17	12
41 – 45	14	10
46 – 50	12	9
51 – 55	20	15
56 – 60	10	7
<b>Race</b>		
Malay	134	97
Indian	1	1
Others	3	2
<b>Level of education</b>		
Diploma	127	92
Degree	10	7
Master degree	1	1
<b>Teaching experience</b>		
1 – 10 years	70	51
11 – 20 years	31	22
21 – 30 years	25	18
31 – 40 years	12	9

Table II is a descriptive analysis of 17 items for general knowledge construct. Findings show that 47% of the respondents answered all the statements correctly. This means that dyslexia is not foreign to them. This can be seen from the statements of 119 respondents (86%) who knew that dyslexia is not myth but in fact an existing problem and followed by 117 respondents (85%) that

answered “Children with dyslexia are not stupid or lazy and being knowledgeable about dyslexia can help them” correctly. A total of 52 out of 138 respondents (38%) had a misconception about dyslexia. This can be seen from the result of 130 respondents (94%) that answered “Dyslexia is caused by visual-perception deficits, producing the reversal of letters and words” incorrectly, 22 respondents (16%) that were found to be lacking of information about dyslexia and 119 respondents (86%) that agreed with the statement “Many students with dyslexia continue to have reading problems as adults”. Although the overall respondents are well educated about dyslexia, 21 out of 138 respondents (15%) were still lacking the information about dyslexia. This shows that there are some of the respondents that are still not well informed about dyslexia. From the statement “Problems in establishing laterality (body schema) are the cause of dyslexia”, 65 respondents (47%) do not know that dyslexia is not caused by problems in establishing laterality. As a whole, this study shows that most of the respondents, which are 73 of them (53%) were not well educated about dyslexia and have misunderstood the concept, causes, risks, behaviours, complications and the effect of dyslexia towards mental health.

**Table II:** General knowledge on dyslexia of the respondents

General knowledge on dyslexia	Knowledgeable	Misconception	Lack of information
1. A result of a neurological ly-based disorder	(95) 69%	(21)15%	(22)16%
2. Caused by visual-perception deficits	(6) 5%	(130) 94%	(2) 1%
3. A child can be dyslexic and gifted.	(102) 74%	(16) 12%	(20) 14%
4. Often have emotional and social disabilities.	(88) 64%	(36) 26%	(14) 10%
5. Their brains are different from those without dyslexia.	(89) 65%	(28) 20%	(21) 15%
6. It is hereditary.	(43) 31%	(74) 54%	(21) 15%
7. About 5% of school-age students have dyslexia.	(82) 59%	(22) 16%	(34) 25%
8. Greater occurrence in males than in females.	(54) 39%	(38) 28%	(46) 33%
9. All poor readers have dyslexia.	(43) 31%	(79) 57%	(16) 12%
10. Reading disabilities without an apparent cause.	(42) 30%	(74) 54%	(22) 16%
11. They are not stupid or lazy.	(117) 85%	(6) 4%	(15) 11%
12. I think dyslexia is a myth.	(119) 86%	(11) 8%	(8) 6%
13. It is due to problems in establishing laterality	(50) 36%	(23) 17%	(65) 47%
14. Chronic condition that is often not completely overcome.	(20) 15%	(104) 75%	(14) 10%
15. Continue to have reading problems as adults.	(13) 10%	(119) 86%	(6) 4%
16. Causes low self-esteem.	(98) 71%	(34) 25%	(6) 4%
17. Dyslexia usually lasts for a long time.	(41) 30%	(65) 47%	(32) 23%
<b>Total average percentage</b>	<b>(65) 47%</b>	<b>(52)38%</b>	<b>(21)15%</b>

Table III illustrates the symptoms and diagnosis of dyslexia. Overall, findings showed that a total of 81 respondents (59%) knew about the symptoms and

diagnosis on a dyslexic student. This was shown from the approval of 118 respondents (86%) on the statement “Applying an individual reading test is essential to diagnosing dyslexia” and “Dyslexia is characterized by difficulties in learning to read fluently”. This study also found that 38 respondents (28%) have a misconception on the symptoms and diagnosis of dyslexia. For example, a total of 125 out of 138 respondents (91%) answered the statement “Seeing letters and words backwards is a basic characteristic of dyslexia” incorrectly. While 18 respondents (13%) were found to be lacking in information on the construct. This can be seen from 39 respondents (28%) who agreed with the statement “Difficulty with the phonological processing of information is one of the most important deficits in dyslexia” and “People with dyslexia have below average intelligence”. This means that there were some of the respondents who were still not well educated about the symptoms and diagnosis of dyslexia among the preschool students.

**Table III:** Knowledge on diagnosis of dyslexia of the respondents

Knowledge on diagnosis of dyslexia	Knowledgeable	Misconception	Lack of information
1. More consistently impaired in phonemic awareness	(72) 52%	(31) 22%	(35) 26%
2. Below average Intelligence.	(18) 13%	(81) 59%	(39) 28%
3. Often read with inaccuracy and lack of fluency.	(110) 80%	(19) 14%	(9) 6%
4. Seeing letters and words backwards is a characteristic	(6) 4%	(125) 91%	(7) 5%
5. Difficulty in phonological processing of informations.	(79) 57%	(18) 13%	(41) 30%
6. Intelligence tests are useful in identifying dyslexia.	(89) 65%	(35) 25%	(14) 10%
7. Problems with decoding and spelling but not with listening comprehension.	(112) 80%	(13) 10%	(13) 10%
8. Applying an individual reading test is essential to diagnosing dyslexia.	(118) 86%	(17) 12%	(3) 2%
9. Generally tend to spell words wrong.	(94) 68%	(28) 20%	(16) 12%
10. Characterized by difficulties in learning to read fluently.	(118) 85%	(12) 9%	(8) 6%
<b>Total average percentage</b>	<b>(81)59%</b>	<b>(39)28%</b>	<b>(18)13%</b>

Table IV describes the teachers’ knowledge towards treatments for dyslexia. Findings showed that half of the respondents, which were 77 of them (59%) were knowing about the treatments for dyslexic students. This can be seen from 120 of the respondents (87%) who agreed with the statement “Students with dyslexia need structured, sequential, direct instruction in basic skills and learning strategies” and 119 respondents (86%) who agreed with the statement “Repeated reading techniques are useful reading material to improve reading fluency”. However, there were some of the respondents who had a misconception regarding to this matter. 68 respondents (49%) have agreed with the statement “Children with dyslexia can be helped by using colored lenses/colored overlays”, followed by 60 respondents (43%) who agreed with the statement “Most teachers receive

intensive training in working with dyslexic children". Only a few of the respondents were not familiar with the treatments for dyslexia. This can be seen from 46 of them (33%) who agreed with the statement "Physicians can prescribe medications to help students with dyslexia".

**Table IV:** Knowledge on treatment of dyslexia of the respondents

	Knowledge on treatment of dyslexia	Knowledgeable	Misconception	Lack of information
1.	Modeling fluent reading is a teaching strategy.	(82) 60%	(25) 18%	(31) 22%
2.	Using colored lenses/colored overlays is useful	(27) 20%	(68) 49%	(43) 31%
3.	Physicians can prescribe medications for dyslexia	(70) 51%	(22) 16%	(46) 33%
4.	Multisensory instruction is not an effective teaching method	(86) 62%	(26) 19%	(26) 19%
5.	Giving students with dyslexia accommodations, (e.g. extra time on tests), is unfair to other students.	(77) 56%	(41) 30%	(20) 14%
6.	Emphasizing phonological and visual support of letters are effective	(103) 75%	(9) 6%	(26) 19%
7.	Most teachers receive intensive training for dyslexia.	(55) 40%	(60) 43%	(23) 17%
8.	Repeated reading techniques improve reading fluency.	(119) 86%	(11) 8%	(8) 9%
9.	Structured, sequential, direct instruction in basic skills and learning strategies are needed.	(120) 87%	(5) 4%	(13) 9%
	<b>Total average percentage</b>	<b>(77)59%</b>	<b>(29)21%</b>	<b>(28)20%</b>

## DISCUSSION

Generally, the purpose of this study is to identify pre-school teachers' knowledge towards dyslexia based on three domains, which are general knowledge, symptoms and diagnosis, as well as the treatments. Overall, this study found that pre-school teachers' level of general knowledge were different based on the construct, even though all of them have the same Diploma in Early Childhood Education. Findings show that most of the respondents master the general knowledge about dyslexia more than the symptoms, diagnosis and the treatments, regardless of their level of academic qualification. This is because teachers' academic qualifications do not affect their knowledge about dyslexia. This statement supports a study by Abercrombie (15), which states that there is no correlation between teachers' level of knowledge about dyslexia with their academic qualifications and educational institutions. Findings indicate that the item analysis based on construct shows the differences in concept that are emphasized, which are inadequate information and misconception towards dyslexia. The differences between these two concepts are used as a guide to create some sort of health education intervention

(16). This is because misconception towards dyslexia is common in every country (17).

The general knowledge construct includes the definition, causes, risks, behaviours, complications and effects towards mental health. Findings showed that respondents understand dyslexic students' behaviours and the causes of dyslexia. They also believe that it is important for them to know about dyslexia in order to help dyslexic students. Knowledge that one can acquire from short term courses, seminars and lifelong learning programmes will be help in increasing one's general knowledge about dyslexia. This finding supports a study by Woodcock & Jiang (18) which states that teachers who are well educated about dyslexia is a causative factor to students' good academic achievements and motivation. However, there are misconceptions and lack of information that states, teachers do not know and understand the implications if these students receive the early intervention. Moreover, teachers believe that dyslexia is only a myth that is deliberately fabricated by students. Teachers' misconception and lack of information will result in negative effects towards dyslexic students, especially to their academic achievements and emotions. This finding contradicts with a study by National Centre for Learning Disabilities (19), which states that dyslexic students that have been noticed and received early intervention obtain positive academic achievements compared to students that receive late intervention.

Findings also showed that most teachers misunderstood and they were not familiar with visual deficit. Teachers believe that reversing letters and words is caused by visual deficit, infact that perception is actually wrong. This finding supports the studies by, Washburn et al. (17) and Soriano et al. (14). One of the causes of misconception is assuming dyslexic as word blindness. Word blindness is a term that carries the meaning, a person is unable to recognize and understand words that he sees. Orton (20) introduced "strophosymbolia" as a theory to describe how difficult it is for dyslexic people to associate visual forms of words with its spoken forms. Not just that, most of the respondents in this study also misunderstood and were not familiar with the colour therapy concept. Respondents believe that colour therapy is one of the treatments for dyslexic students. This finding is supported by Washburn (17), which states that majority of the teachers agreed that usage of colored lenses will help students with dyslexia. Colour therapy is not the correct treatment for dyslexic students and this issue is still being discussed to see the effectiveness of it. This supports a study by Henderson et al. (21), which stated that colour therapy does not affect neither dyslexic students, nor normal students. Hence, it is clear that misconception and inadequate information were caused by teachers' lack of knowledge about dyslexia specifically. A study by Ness & Southall (10) also stated that one of the main reason why teachers



misapprehend dyslexic students is because teachers are not well educated about dyslexia, especially about the characteristics of it. Another study by Tremaine Foundation (11) also agreed that teachers who were not well educated about dyslexia always thought that dyslexic students are lazy, they come from a bad family background and they have mental illness problems.

The issues with misconception and lack of information that are being discussed showed that it is important for teachers to improve their knowledge in all three constructs as it is the basis to a comprehensive health education intervention. Although most teachers have received basic training about dyslexia, there are still a few weaknesses found in this study that need to be improved. This supports a study by Washburn (17), which stated that the effects of teachers' training intervention are able to prepare teachers in handling dyslexic students. His study also states that a long period of teaching experience is not an indicator that teachers are able to handle dyslexic students. This statement is similar to a study by Allen (22), which states that intervention affects teachers' awareness towards the signs and symptoms of a pre-school dyslexic student. In addition, it will also help in identifying the suitable teaching strategy to teach reading skills, so that it will be implemented effectively.

## CONCLUSION

In conclusion, teachers are responsible in identifying the strengths and weaknesses of students who are risk of dyslexia during the teaching and learning process. Teachers will be able to do this if they are well educated about dyslexia and that includes the aspects of definition, causes, risks, behaviours, complications and the effects toward mental health, the symptoms and diagnosis, as well as the treatments. Through the mastery of all these aspects, teachers' misconception and lack of information about dyslexia can be overcome.

## ACKNOWLEDGMENT

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