

## Awareness of Riyadh's Elementary School Teachers about Reading Disability (Dyslexia)

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### Abstract

**Background:** Dyslexia is the most common subtype of learning disabilities with a prevalence ranging from 5 - 10 per [1]. It characterizes by word decoding, which adversely impacts spelling performance and reading fluency [2]. This represents a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities [3]. The early detection of this disability is the key to guide the affected child in his life through school or even at his future workplace. This problem can be missed if the educational system, which is the first line that the child encounters away from home are not aware of the symptoms that would raise the suspicion and lead to early diagnosis and thereafter the management. In order for it to be recognized, a certain level of knowledge and experience teachers should acquire in reading disability, and they should have a low threshold in the matter of suspecting and referring the affected child for further assessment.

**Methodology:** This cross-sectional study of a convenient sample included 500 of elementary public and private school teachers in Riyadh city. A questionnaire that assessed the awareness and knowledge about dyslexia was distributed in the month of February 2017 and teachers were given two days to respond. The questionnaire asked about demographic data, knowledge of the diagnostic criteria of dyslexia and previous exposure to children with dyslexia.

**Result:** A total of 600 questionnaires were distributed, 200 of which were given to boys' schools. Response rate was 83%. Two thirds of the responses were from public schools and 61% of the responders were females with highest rate between the ages of 31 - 40 years and those with 1 - 10 years of teaching experience for both genders. Although the majority of responders documented that they were aware of the term dyslexia, they showed fair knowledge of its diagnostic criteria, a result that did not vary with any of the demographic variables or the years of teaching experience.

**Conclusion:** The study reveals that awareness and knowledge among elementary school teachers is fair to poor regarding the diagnostic symptoms of dyslexia. We recommend that all teachers have mandatory education programs about various learning disabilities specifically dyslexia.

**Keywords:** Disability; Dyslexia; Children

### Introduction

Dyslexia is the most common learning disorder in children, but it has not received adequate attention in developed countries such as KSA [4]. Many researches done in the developed countries such as the US suggest that the prevalence of children with dyslexia has increased throughout a period of 12 years (1997 - 2008). Although resources are more focused on infections and nutritional disorders. A prosperous economy and rapidly rising literacy rates have resulted in increasing recognition of this debilitating educational and social disability [5]. A study done in Saudi Arabia to measure the prevalence of dyslexia among a sample of Saudi primary students in different regions of the country revealed that Riyadh region had the highest rate of dyslexia spread (30.6%) [6]. The British Dyslexia Association defines dyslexia as a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling [7]. A Cochrane review revealed that around 5% of English speakers have significant problems with learning to read words [8]. A French study conducted in 1062 children from 20 schools in Paris concluded that 12% had reading impairment. Paucity of statistical data determining the extend of learning disabilities and the spread of dyslexia among Saudi population led to marginalization of these groups and the failure of providing them with the necessary education needed from a young age. Screening millions of students and identifying children with specific learning disabilities by educational system is a major logistics difficulty. Therefore, awareness and knowledge about learning disorders among school teachers may play a major role in early identification and management of children with these disorders. There are very few studies on the link between teachers having specific knowledge and awareness about the symptoms of dyslexia.

### Methodology

A self-reported questionnaire was given to 600 elementary school teachers in 28 schools in Riyadh city. Those teachers where both males and females in schools within different regions in Riyadh city and had a bachelor's degree in education with a variety of specialities including language teaching, mathematics, science and social studies .After selecting the schools, second step was to distribute the questionnaire .The questionnaire started with socio-demographic data followed by the taught subject to evaluate the distribution between literature, science and mathematics teachers. As well as evaluating the years of experience of the teachers involved in the study. After completing the first part , teachers were asked if they ever had heard of the term dyslexia. Then, the main focus of the questionnaire which to access the awareness of dyslexia among elementary school teachers was organized in table manner with three options were the high score for positive answer and lowest for negative one. The table included eleven signs and symptoms of dyslexia to be recognized by the evaluating teachers. To yield a high level of accuracy there was two misleading questions that were about hyperactivity and socio-phobia that were not part of the diagnostic symptom of a child with dyslexia. The second page of questionnaire where to access the source of knowledge that the teachers had regarding dyslexia as well as counseling of a child with dyslexia whether parental, social expert, school principal or no action is needed. The aim was to understand and evaluate the educational systems. Moreover, the filling time was about an hour in there break time and the duration of distribution and collecting was 8 workdays.

Lastly, the teachers were informed about contacting us any time during the study for their perspective and suggestion.

### Results

In our study only 197 of the 500 respondents were male which reflects the distribution of questionnaires between schools, hence gender as a variable influencing knowledge was assessed. The teaching experience ranged from 1 years to more than 30 years, the majority of teaching experience years were nearly equal between one year to thirteen years and only nine teachers had more than thirty years of experience. Figure 1 shows the major source of information on dyslexia. Personal knowledges were the major source of information about dyslexia cited by 430 teachers, and the rest cited special training about dyslexia and educational campaign.

### Ethical approval

Ethical approval for the research topic "Awareness of Riyadh's elementary school teachers about reading disability (dyslexia)" was gained at February 4<sup>th</sup> 2017 from Princess Nourah Bint Abdul Rahman University institutional review board with IRB Registration Number with KACST, KSA: H-01-R-059.

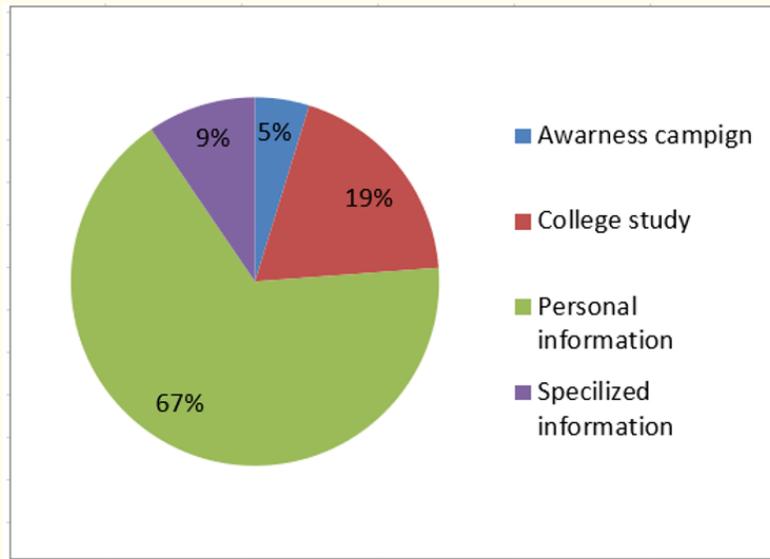


Figure 1: Nutrition, nutraceuticals and pharmaceuticals.

**Analytic study to evaluate the level of awareness among teachers of elementary schools about (Dyslexia) in children**

Dear teacher:

We are kindly asking you to join us in our scientific research that have been done by the medical student of princess Nora Bint Abdulrahman aiming to evaluate the level of awareness among teachers of elementary schools about Dyslexia. We also assure you that this questionnaire and all the information will only be used for the purpose of the scientific research, therefore there is no question requires any personal information about the participant. This questionnaire will take only about 5 minutes.

Gender: male female

Subject taught: ..... Age: .....

Grade taught: ..... Collage degree and field: .....

Years of experience: .....

The elementary school: Governmental private International

**Teachers Knowledge Score**

Table 1 represent a self-reported question that was used to assess the teacher’s knowledge and awareness regarding the diagnostic criteria of dyslexia which have been written with the assistance of pediatrician.

This questionnaire including 13 questions describing signs and symptoms of dyslexia, 2 of these Questions was intentionally misleading Q (6 - 10).

Based on their responses they have been categorized into three groups: score 1 - 6 poor, 7 - 10 fair, above 10 good. The highest percent was „fair” accounting for .44.2%, concluding teachers had “fair” Knowledge regarding the diagnostic.

1- Have you ever heard of Dyslexia?			
<input type="checkbox"/> Yes		<input type="checkbox"/> No	
2- In your opinion, what are the character of a child with Dyslexia?			
- Difficulty in learning to write the alphabet correctly in sequence.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Difficulty in learning and remembering printed words.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Reversal of letters or sequences of letters, or mirror writing	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Difficulty in learning to read.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Difficulty in reading comprehension.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Difficulty in communicating with other children.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Repeated erratic spelling errors.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Delay in spoken language.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Difficulty in pronouncing words in a right way.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- They are hyperactive.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Maybe late in establishing preferred hand for writing.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- May be late in learning right and left and other directionality components	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
- Problems in learning the concepts of time and temporal sequencing.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
3- what is the sources of your knowledge about Dyslexia?			
<input type="checkbox"/> Collage study			
<input type="checkbox"/> Special training about Dyslexia			
<input type="checkbox"/> Educational campaign			
<input type="checkbox"/> Personal knowledge			
<input type="checkbox"/> others .....			

Aware of the term 'Dyslexia'	Unaware		Aware	
	49 (9.8%)		451 (90.2%)	
Knowledge category	Good	Fair	Poor	
	142 (28.4%)	221 (44.2%)	137 (27.4%)	
Diagnostic Criteria	Unaware		Aware	
Difficulty in learning to write the alphabet correctly in sequence.	123 (24.6%)		377 (75.4%)	
Difficulty in learning and remembering printed words.	132 (26.4%)		368 (73.6%)	
Reversal of letters or sequences of letters, or mirror writing	154 (30.8%)		346 (69.2%)	
Difficulty in learning to read.	94 (18.8%)		406 (81.2%)	
Difficulty in reading comprehension.	131 (26.2%)		369 (73.8%)	
Difficulty in communicating with other children.	281 (56.2%)		219 (43.8%)	
Repeated erratic spelling errors.	117 (23.4%)		383 (76.6%)	
Delay in spoken language.	170 (34%)		330 (66%)	
Difficulty in pronouncing words in a right way.	207 (58.6%)		293 (41.4%)	
They are hyperactive.	338 (67.6%)		162 (32.4%)	
Maybe late in establishing preferred hand for writing.	268 (53.6%)		232 (46.6%)	
May be late in learning right and left and other directionality components	284 (56.8%)		216 (43.2%)	
Problems in learning the concepts of time and temporal sequencing.	296 (59.2%)		204 (40.8%)	

Table 1: Knowledge score.

**Effecting factors on knowledge score**

Table 2 shows the knowledge level that did not vary with any of the demographic variables or the years of teaching experience.

Factors	Knowledge score			Chi-square tests
	Poor	Fair	Good	T-tests
<b>Age</b>				
21 - 30	45 (43.7%)	43 (41.7%)	15 (14.6%)	24.424
31-40	58 (26%)	100 (44.8%)	65 (29.1%)	
>41	34 (19.5%)	78 (44.8%)	62 (35.6%)	
<b>Gender</b>				
Male	57	88	52	0.775
Female	80	133	90	
<b>Specialty</b>				
Scientific	42	81	52	1.565
Humanity	95	140	90	
<b>Years of experience</b>				
1 - 10	74 (35.7%)	87 (42%)	46 (22.2%)	16.111
11 - 20	42 (23.2%)	84 (45.4%)	55 (30.4%)	
21 - 30	20 (19.4%)	45 (43.7%)	38 (36.9%)	
> 31	1 (11.1%)	5 (55.6%)	3 (33.3%)	
<b>School</b>				
Governmental	82	141	109	10.170
Private	55	80	33	

*Table 2: Effecting factors.*

**Discussion**

The primary purpose of this paper is to study the awareness and knowledge of dyslexia among elementary school teachers in Riyadh. The term dyslexia is described as difficulty in learning to read or interpret words, letters and other symbols but that do not affect general intelligence. There are many doubts regarding the prevalence of dyslexia in Saudi Arabia as international studies reveals that at least 5 - 10% of school-age children suffer from dyslexia, however less than 30% are identified and diagnosed in elementary schools of Riyadh.

In our study 451 teachers were aware of the term “dyslexia”, regarding its diagnostic criteria 377 teachers had fair knowledge in the ability to diagnose child with dyslexia, however two misleading questions were added intentionally to the diagnostic criteria and unexpectedly these two questions had the highest present of unawareness which represent 38% among the rest [9]. These findings are varied from the result obtained in study which was conducted in India, these which stated that only 7% out of 314 elementary school teachers were aware of dyslexia diagnostic criteria, this reflect that teachers in Riyadh elementary schools are having a wider level of knowledge and awareness about reading difficulty [10]. Another study was done that measured the awareness of secondary school teachers of dyslexia and comparing between both rural and urban, result shows There is no significant difference among the rural and urban located secondary school teachers on the awareness of Dyslexia of Papumpare District of Arunachal Pradesh” [11]. There is study was done in the US and UK to measure the knowledge of dyslexia in one hundred preservice teachers, the teachers displayed the same common misunderstanding.

Lastly, we have asked teachers if they think they need to know more about dyslexia, despite having a fair knowledge, 92% of them thought they need to know more. Consequently, we are looking forward for the ministry of education to have more intensive workshops and training programs as a part of teacher's preparation programs.

### Conclusion

The study reveals that awareness and knowledge among elementary school teachers is fair to poor regarding the diagnostic symptoms of dyslexia. We recommend that all teachers have mandatory education programs about various learning disabilities specifically dyslexia.

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