Int. j. adv. multidisc. res. stud. 2022; 2(6):309-314

Received: 21-09-2022
Accepted: 01-11-2022

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

A Case study of Dyslexia with OCD

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Abstract

Dyslexia is a specific learning disability in reading and writing, which requires adequate early intervention to prevent future school failure. Obsessive compulsive Disorder is avoidance of specific behaviors or repetition of behavior/thoughts.

A 10-year-old boy was diagnosed with "dyslexic" and having mild OCD. The evaluation of his family, social, medical, developmental, and academic status was done. The study follows a mixed method approach (questionnaire; face-to-face interviews; pre-posttests). Student performance on spelling, reading and writing skills were tested through Dynaread Dyslexia Test. The rating on OCD scale was borderline. The diagnostic evaluation shows a poor performance in written language, especially in accuracy reading and spelling and reading fluency. The OCD revolved around punctuality, clean dressing and wet hands.

The intervention program continued to be characterized by individual attention, structured and focused on written language, which aim to improve the educational needs that the student has in reading and writing. The CBT with children focused on his OCD thoughts.

The teaching and learning experiences that took place included a multisensory approach, which combined the modalities visual, auditory, kinaesthetic, and tactile, using technology (Tablets for special need students), Orton-Gillingham approach, brain gym exercises, in a context of written language as natural and meaningful as possible. After 30 weeks of thrice-weekly sessions, the student has achieved significant improvement in both reading and writing, reducing the number of errors in accuracy and fluency, and improved spelling and joints and fragmentation of words in their written compositions. The cbt improved his obsession with punctuality and irritability related with wet hands.

Keywords: Dyslexia, Urdu, Obsessive Compulsive Disorder

Introduction

Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed. Co-occurring difficulties may be seen in aspects of language, motor coordination, mental calculation, concentration and personal organization, but these are not, by themselves, markers of dyslexia. A good indication of the severity and persistence of dyslexic difficulties can be gained by examining how the individual responds or has responded to well-founded intervention (Rose, 2009) [24].

Pakistan is a country with diversity in language and culture. Urdu is the national language (Seifi, 2015) [27], however a proficiency in the English language is the key to success, prosperity, and higher social prestige (Ahmad, 2016) [1]. According to The National Education Policy (MFEPT, 2017), exposure to English as a compulsory subject should start from grade one, and English as a medium of instruction for science and mathematics should be used from class V onwards.

Urdu, one of Pakistan's national languages, is the second most spoken language in the world (Rahman, 2004; Ulrich, 2015) [20, 30]. Despite having 588 million speakers including 70 million native speakers (Lewis *et al*., 2016; Ulrich, 2015) [9, 30], it still is a very much under-researched language (Farukh & Vulchanova, 2014) [5]. Hence, the nature of reading processes in Urdu and reading impairments, such as dyslexia, are not yet fully understood nor studied in-depth, which is an important reason why struggling readers are not properly identified, assessed or remediated in Pakistan. This paucity creates a vicious cycle of negative consequences such as academic underachievement, relatively low national education levels and under employment, which potentially affects quality of life (Qin, 2016; Schulte-Körne & Bruder, 2010) [19, 26].

In Pakistan around six million children are deprived of quality education (Education for All, 2015) [4]. The most common barriers include high illiteracy rates, poverty, gender discrimination, a lack of training, low salaries and high workload for teachers (National Education Management Information System Pakistan-NEMIS, 2012-13). Spending less than 3% of the national budget on education, the Pakistani government appears negligent to these problems (Naeem, Mehmood, and Saleem, 2014) [15]. It is, accordingly, hard to determine whether children's reading problems in Urdu emanate from a lack of attention and available resources at school or a high prevalence of illiteracy in the family, or whether they can be attributed to dyslexia.

An exact dyslexia prevalence rate for Pakistani children is not yet available. Of all persons with disabilities in Pakistan, an estimated 25% are children aged 5-14 years of whom only 2% had access to special schools (Shahzadi, 2000) [28]. Screening 200 primary schoolgirls (grades 3, 4 and 5) for specific learning disorders (as based on DSM-5 criteria), Irshad (2005) [8] concluded that 75 met the criteria, while the author also observed high rates of emotional problems such as depression, anxiety, lack of confidence and poor self-image. Ashraf and Majeed (2011) [2] assessed 250 boys and 250 girls (aged 11-17 years) attending grades 6, 7 and 8 of Pakistani government schools and found 5% of the students to meet the DSM-5 diagnostic criteria for dyslexia.

The program was devised to focus on interplay of morphology in Urdu word recognition rather than reading of text.

Background

When client was ten years old, his mother was referred to the Ijaz Psychiatric Institute by the staff of the private school he attends, and at that time, he was in the fifth year of primary education. She quoted his teacher as follows: "Client muddles letters and writes them backwards. I think he has dyslexia, because none of the other children in his class do what he does. For example, he wrote handret instead of hundred, kalok instead of clock".

We first collected information on client's medical and developmental status and his situation in his family and at school. He was the youngest son among three siblings. His father was 37-year-old (a foreign officer) and a 35-year-old mother (a physician), both of whom had completed higher education. The family lived neutral family system; all of the siblings are studying in school. Client had his own room, but sometimes does his homework in the kitchen so that his mother can help him. Both English and Urdu were spoken at home and Urdu was first language. Client's parents were habitual readers, and they used to buy books, magazines, or newspapers. Client was not addicted to television (he watches cartoons while having his breakfast, and from time to time, a film, but no more); he preferred to ride bicycle, play video console games, or play football with the other boys of the neighborhood. His parents neither practiced corporal punishment nor gave him gifts as reward for any particular kind of achievement. The client felt irritated with wet hands and showed extreme anxiety even with water bottle near his table area, he used to immediately dry his hands and wanted his friends to do the same. He did not play in the ground due to fear of dirt.

Client was born by Caesarean section with a fetal age of almost nine months and a weight of 3.2 kg. He began to walk at age 10 months, and was toilet-trained by the age of two years. When he began to talk, at an age of about two and half years, only his parents understood him. At age of three, he underwent for speech therapy because his speech was not clear. By age of five, he dressed and washed without help. At the time of our investigation, he had received all the standard vaccines. He was a fussy eater with a poor appetite. He was right-handed. His mother recalled that until the age of about two years, he had had difficulty in sleeping (having to be put to bed after falling asleep in his mother's arms), and had been very dependent on his mother, crying when left with strangers.

Client started preschool at age of four, and had always attended the same institute. He was taught reading and writing in Urdu and English at age of five, in his second and final year of preschool. According to his mother, his last preschool teacher was very strict and demanding. Whenever Client failed to finish a task, he was punished. His school report at the end of his first year of primary education noted a need for improvement in language (taught using a book with worksheets and handwriting exercise books) and in mathematics. His mother recalled that his teacher for that year had said that he did not finish his tasks like the other children, that he often muddled letters.

When our treatment with him began, client was in his fifth year of primary education. Teaching was carried out in Urdu with the help of standard commercial school books. In language classes, the children typically read to themselves and then read aloud and answered the teacher's questions. Often, they also acted out the text read, or drew pictures to illustrate it. Other activities included text copying, dictation, and making up endings for a half-finished story. He was very hard-working but took longer than others to complete his tasks, which he sometimes had to finish during playtime or at home. He also failed to express himself clearly, sometimes answering questions with unexpected or strange utterances; had difficulty with multiplication tables and elementary arithmetical operations; and found it hard to learn basic concepts. He liked drawing and physical education (gym in hall), attended classes regularly, and got on well with his classmates.

Examination of his workbooks (the language class book, handwriting exercise books and a general exercise book usually used for dictations and copying) showed that his most frequent writing errors were repetition of the word (when asked to describe Mr-Twist a story character, he wrote "he was a mhan how ded not cut his biyard" ("he was a man who did not cut his beard"); omission and replacement of letters ("he was eedig with spuen," for he was eating with spoon); word splicing and word splitting ("all the ty m hes biyard vaz derte", all the time his beard was dirty" and ambiguous formation of small "s", "z", "a", "e", "I" and "o".

Assessment

Reading and writing test results: This test measures the current functioning of the student's Fast Route (Lexical Route), fluency and accuracy reading system (Common English Words). In this module we presented the client with a maximum of 20 Common English Words (CEW), in increasing levels of difficulty, increasing in length, and decreasing in frequency of occurrence in today's English. Client took considerably longer than normal for fifth year primary school children. He appeared to have difficulty in

comprehending texts, but not in comprehending written commands or isolated sentences. Reading accuracy errors included the followings:

(1) On identifying isolated letters aloud, he mistook "j" for "g", "w" for "m", "l" for "i", "ch" for "h", "v" for "b", "k" for "q", and "k" for "c". He also had to correct himself in identifying "y" (first confused with "i"), "x" (z), "rr" (r), "c" (first pronounced "ka") and "f" (first pronounced "fe"), and was very slow in identifying letters belonging to symmetrically related pairs (b/d, p/q);

(2) Mistakes made on reading isolated syllables included reading "og" for op, "bin" for "din", "dor" for "bor", "od" for "ed", and "bru" for "pru". Consonant-vowel and vowel-consonant pairs were inverted (e.g., "tra" for "tar", "deir" for "dri").

We also measure the current functioning of the student's Slow Route (Grapheme-Phoneme) reading system (Non-Word Reading Module). In this module we presented the student with a maximum of 20 Non-Words (NW). Each of these words look like normal English words, but do in fact not exist. The words however can be pronounced using regular phonics rules. The purpose of this component of the Dyslexia Test is to measure the functioning of the student's phonological decoding skills.

Client showed problem in decoding of these letters sounds, formation of small "s", "z", "a", "e", "I" and "o".

In writing accuracy tests, the following mistakes were made:

(1) In copying words, the syllables eye and bed were written "iyi" and "bad", respectively, dirty was written "derete", beard with "biyeed"

(2) In both the dictation test and spontaneous writing, many spelling and punctuation mistakes were committed, including h-dropping and h-insertion, writing "i" for y (or vice versa) or "b" for "v" (or vice versa), inversion of letters ("em" for me), writing small letters instead of capitals after a full stop, and omitting or misplacing accents. Words were run into each other.

General intelligence: Client's score on the RAVEN (Escala CPM-Color/Colored Progressive Matrices) test was 60, slightly above the mean for his age group.

Learning Disabilities Scale: The Learning Disabilities Scale (LDS) was developed by McCarney (1996). The scale consists of 88 items grouped into seven subscales. The scale was applied to assess learning disability of the client. The client high scored in writing skills that indicated the severity level in the writing skill of the client. The client also high scored in the spelling ability that indicated the severity level in spelling ability. His listening ability and spoken language were on moderate severity level. His memory and numerical ability were on mild severity level. These results clearly indicated a diagnosis of dyslexia when considered in conjunction with all the other information noted above.

Children's Yale-Brown Obsessive Compulsive Scale: The client scored 21 on CY-BOCS, which indicates mild OCD. The client also fulfilled the criteria of DSM V.

Specific diagnostic tests for dyslexia: Pedro's centile score on the reversal test was 98. In other words, he had no difficulty in discriminating perceptually between left and right, or between related distinctions, and was, therefore, theoretically mature enough to learn to read. On the Spanish version of the Bangor Dyslexia Test (Outón, 1996; 2010) [17, 18], he scored positive for dyslexia on 6.5 of the nine items administered, giving typical dyslexic responses, such as looking at his hands when asked to distinguish right from left, using his fingers in the subtraction exercise, and muddling months with seasons and weather conditions. Although the Bangor test is not definitive for children of Pedro's age (seven years four months at the time the test was administered), these results clearly indicated a diagnosis of dyslexia when considered in conjunction with all the other information noted above.

As positive qualities, we noted his willingness to take pains over his work, the care with which he treated his school material, his enjoyment of drawing and physical education, and his good adaptation to school in general.

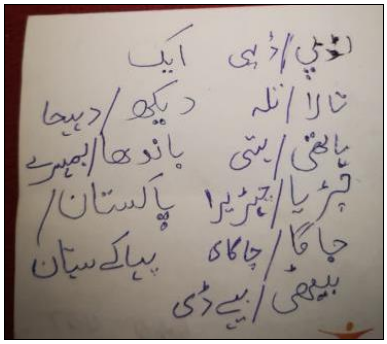
Results

Table 1

Errors/Time	December 2019	February 2021	Remarks
Substitutions	2	-	
Rotations	3	-	The number of error, initially much greater than the mean for level 1,fell below the mean for level 4, speed increased from about Level 1 to level 3
Additions	1	-	
corrections	1	-	
Hesitation	2	-	
Total	9	0	
Time (s)	27	18	

Table 2

Errors/time	December 2019	February 2021	Remarks
Substitutions	4	1	
Rotations	1	-	The number of errors was
Additions	1	3	halved, and most of those
Corrections	1	-	made in august were
Hesitation	3	1	minor.
Total	10	5	Speed increased slightly.
Time (s)	37	29	



Images 1

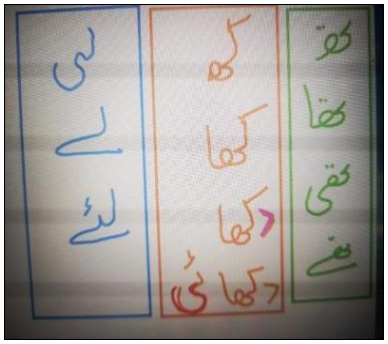


Image 2

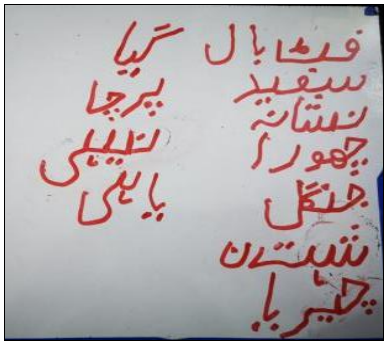


Image 3

Intervention

It was decided that one of the authors would give client a personalized reading and writing recovery program composed of three one-hour sessions each week, with a pupil/teacher ratio of unity. The program would be carried out in English and Urdu, would concentrate on reading and writing tasks rather than on associated neuropsychological factors, and would adopt a slow and highly structured approach. We expected that considerable progress could be achieved within approximately six months. Beside this weekly one-hour session was taken to deal his OCD.

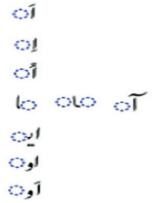
To achieve the first of the goals noted in summary of educational strengths and weaknesses, we used the multi-sensorial methodologies of phonologically based intervention practiced in is the Orton-Gillingham (OG). A key feature of this approach is its multisensory instruction that emphasizes the learning of alphabetic phonics in a systematic, analytic (application of rules), cognitive (consciousness of the thinking process), sequential and cumulative (moving from simple to complex) and emotionally sound manner (Gillingham & Stillman, 1997) [6]. We also tried to increase awareness of phonemes and the ability to divide spoken or heard words in proper sequences of phonemes. It was expected that it would take 4-6 sessions to consolidate each letter-phoneme correspondence.

For the second goal, improvement of written composition, we began with three- or four- word sentences suggested by client himself. Given each sentence, he first had to divide it orally into individual words (with the aid of his fingers, if necessary), then to compose it on a steel sheet using magnetized letters, then to copy the composed sentence in writing, and finally to write it without the model with the help of the following explicit protocol: "Think it, say it aloud, capitals for the first letter and in proper names, full stop at the end, revise it" (in pursuit of the fourth of the goals, this kind of protocol was also used to increase meta-cognitive awareness in relation to other linguistic tasks). As time went on, the complexity of the sentences was increased.

Transliteration IPA

The letter alif

A as /ə/ called, I as /ɪ/ called, U as /ʊ/ called, Ā as /aː/ called, e as /eː/ called, o as /oː/ called au as /ɔ/ called



For this dual route method was used and in written with colour coding on sand tray then on white board and lastly on sketch book.

In detection exercise (Muter and Snowling, 1997) [14] included words where he was asked to hear the word and make a new word by omitting the initial or final phoneme.

Colour Coding words included Consonants and vowels and interplay involved 4 coloured markers, namely yellow, orange, blue, green, pink (Rello, L. (2012) [23]. MAPS helped him in focusing on his lesson plans and he also mapped longer words (Canas, & Novak, 2017). In Rainbow technique he learnt to break sentences into smaller words and it included color coding also. He went from letter coding to word colour coding and it improved his sentence structure. Apart from this program included brain gym regularly 30 minutes in the morning and evening. (Watson, & Kelso, 2014) [32].

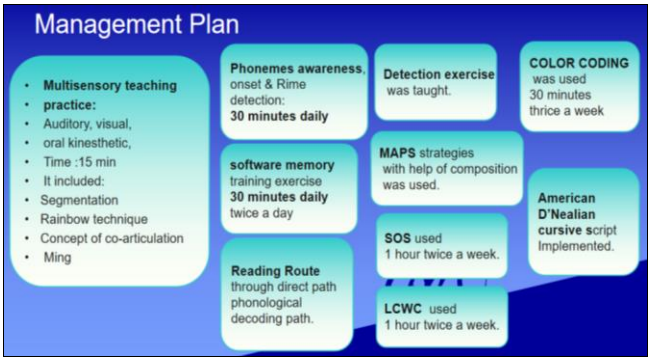


Image 4

Discussion

Dyslexia still goes undiagnosed in third world countries. Several children go for home tuitions and thus get highlighted. There are many interventions regarding dyslexia in English but there is no program designed for the treatment of dyslexia in Urdu. Urdu has sophiticated orthography and is a mixture of Arabic, Persian languages. It has which has only 2 semivowels and 1 vowel highlighted by diacritic positions. Urdu has 38 letters (Rao, Vaid, Srinivasan, & Chen, 2010) [21].

The client studied in English medium school and could not grasp the phoneme initially. Previous research has shown

that visual-orthographic implementation and phonological and morphological awareness are important in learning (McBride-Chang & Ho, 2000) [12]. The child got confused from beginning also because Urdu is bit confusing. Research has shown students struggling with reading displayed better performance on opaque words (without diacritics, having one and more than one correct pronunciation) than on transparent words (with diacritics). The detection technique helps students overcome this lexicality effect (Tabossi & Laghi, 1992). Many struggling reader have different brain formation and thus brain gym is helpful which many studies have researched and found its effectiveness (Marpaung, *et al.*, 2017) [11]. In Urdu language phonological route is best through letter-to-sound mapping but in initial years. In Pakistan stress is on English phonemes and Urdu starts later in grade 2, where children have to learn the word through visual aid. Thus, it leads to difficulty in reading. Thus, focus on mapping helps overcome dyslexia to some extent. (Haidry, 2017) [7]. Casalis & Louis-Alexandre (2000) [3] had stressed the morphological awareness in reading. OCD treatment along with cbt is helpful despite the fact the student is with dyslexia (Saboo *et al*., 2015) [25].

Conclusion

The case study was the initial trail of designing a program at school level. It will be generalized with more authentic assessment pattern. The case was a success to some extent and a hallmark in the curriculum design of the children with dyslexia whose first language is Urdu. Further research will include more sample and generalize the results in English medium schools.

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