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CONCEPTS OF PRINT IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is one of the childhood disorders in India that has been the attention of both the medical and educational fields. A child with ADHD faces many challenges in reading. The present study focuses on the sub skills relating to Concepts of Print, components of decoding and reading comprehension. Eighty five children with ADHD in the age group of six to eight years studying in mainstream schools in Tamilnadu, India were the participants of the study. A self-prepared checklist was used to assess the reading skills related to Concepts of Print and comprehension. The collected data was analyzed using descriptive statistics. Children with ADHD were found to have significant difficulties in visual scanning, decoding, and comprehension. The study concludes that parents and teachers need to emphasize on book and print awareness to help children with ADHD become successful readers.

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INTRODUCTION

A child's reading skills are most important to their achievement in life, school, and work. Reading and writing are significant ways of communication. Reading is a multifaceted process that makes meaning from print. It requires letter and word recognition, decoding, phoneme awareness, phonics, reading fluency, print concepts, and comprehension skills. Each of these skills are necessary and balances each other. Of these, Concepts of Print is an important aspect of the reading process. According to the National Reading Panel (2004), children's sensitivity and knowledge toward print concepts is an important predictor of literacy achievement and a first step towards reading success. Print concepts refers to book and print awareness the functions and use of print (Print concepts, 2015). Print awareness refers to children's ability to recognize the function and form of print and the relationship between oral and written language (Laura *et al.*, 2015). Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of childhood (Attention, 2015) with three primary symptom areas - inattention, hyperactivity, and impulsivity. According to the statistical research by Russell Barkley,

- On average, there are 1 to 3 children who have ADHD in every classroom of 30 students.
- Three to six more boys are diagnosed than girls.
- 25% of students with ADHD have other serious learning problems in one or more of these areas: oral expression, listening skills, reading comprehension, and math.
- Half of all ADHD students have listening comprehension problems.
- About one-third of these students have one or more of the following:
 1. Language deficits (poor listening comprehension, poor verbal expression, poor reading comprehension)
 2. Poor organizational skills
 3. Poor memory
 4. Poor fine motor skills
- Students with ADHD are two to three times more likely to have problems with expressive language than their non-ADD peers (The Statistics of ADHD, 2016).

A study by (Czamara *et al.*, 2016). Found that children with ADHD symptoms are at higher risk for reading/spelling and math difficulties compared to children without ADHD symptoms. The symptoms of ADHD pose a major threat to academic achievement. Reading and literacy achievement is a major objective in all educational systems in the developed countries.

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But in India, reading is not given top priority in schools instead the emphasis is more on academic achievement. With regard to educational services for children with ADHD, India is still in its infancy stage. Researches have often been directed towards the acquisition of phonological awareness in children with ADHD. Comparatively there is very limited research on print awareness. This study on Concepts of Print in children with ADHD focuses on a less researched area of reading. Most parents and teachers focus on reading as a whole and less attention is given to the various sub skills of reading. For children with ADHD these skills need to be specifically addressed and worked on. These skills are essential as they are important predictors of reading achievement in the subsequent years. It has been shown that print awareness comprises important elements of the foundation of emergent literacy knowledge (Stuart, 1995) (Laura *et al.*, 2016). Approximately 20 to 30 percent of school-age children have difficulties learning to read. Almost as many girls as boys experience difficulties learning to read (Reid Lyon, 2016). Children with ADHD who face the additional problems of reading difficulties are at greater risk for academic failure and psychosocial consequences which in turn interfere with life and the ability to succeed socially, educationally and professionally. It is therefore crucial to recognize and understand the nature of these reading difficulties in relation to Concepts of Print in children with ADHD. There by facilitating teachers and parents to devise strategies to help these children cope with difficulties in print concepts.

The main objectives of this study on children with ADHD are to

1. Study the Concepts of Print
2. Identify the components of decoding
3. Study the performance of the respondents in comprehension

MATERIALS AND METHODS

The researcher selected 85 children with ADHD in the age group of six to eight years studying in mainstream schools in Tamilnadu, India by simple random sampling technique. A self-prepared checklist was used to assess the reading skills related to concepts of print and comprehension. The respondents were given a story book designed by the researcher based on the reading level of six to eight year olds. While the respondent read the book, the researcher observed the respondent for skills present. After completion, questions related to the storybook were asked and answers were graded in a 5-point scale ranging from excellent to poor. The observed skills and answers of the respondents were filled in the score sheet given. Analysis of the collected data after coding was subjected to basic percentage calculations to arrive at the results.

RESULTS

The above table 1 represents the observations made with regard to Concepts of Print namely the knowledge of print awareness and book handling skills. Concepts of Print are some of the earliest literacy skills a child acquires. The first concept of print is that the letters and words bring meaning to the reader. This understanding comes through continued

participation in reading with adults and peers when they start to recognize the different patterns in print and how written and oral language are linked. The above table 1 indicates that the respondents were familiar with books and the basics of handling a book. But as it is well known that children with ADHD have a short attention span, it translates into difficulties in visual scanning in both word to word scanning and sentence to sentence scanning as seen in the table 1. It was also noted that most of the respondents (85.9%) referred to the pictures in the storybook when they came across a new word, for better understanding of the story and also for pleasure. According to Reutzel and Cooter, (2004) learning print concepts at an early age positively influences children's language development and emergence as readers and writers (Print concepts, 2015). From table 2, it is seen that children with ADHD have difficulty in decoding which is another skill requiring attention. Decoding is the process of translating print into speech by rapidly matching a letter or combination of letters (graphemes) to their sounds (phonemes) and recognizing the patterns that make syllables and words. Decoding is important because it is the foundation on which all other reading instruction builds. If students cannot decode words their reading will lack fluency, their vocabulary will be limited and their reading comprehension will suffer (Reading Strategies, 2015). The table also suggests that children with ADHD have difficulties with punctuation. It was noted that there was a lack of attention to punctuation while reading, with respondents often skipping punctuation. Brock and Knapp found that reading problems in children with ADHD are a result of difficulties with effortful processing, the ability to sustain attention under heavy cognitive demands. In their study (1996), children with ADHD who possessed average to above average decoding skills demonstrated impaired comprehension abilities, which could not be explained by a specific reading problem or a learning disability of some kind.

Many of the problems that children with ADHD experience during reading are linked to poor meta cognition (Weiler *et al.*, 2009; Levine, 2001; Robins, 1992). Children with ADHD must therefore be taught a myriad of self-monitoring strategies (before, during and after reading strategies) once decoding begins to become more automatic and the shift from learning to read versus reading to learn occurs (Mary Beth Burns, 2010).

Table 3 consolidates the score of the respondents in story comprehension. After the respondents finished reading the story, they were asked inferential, direct and indirect questions to elicit responses which enabled the researcher to assess every aspect of the respondents' comprehension of the story read. When the scores were analyzed it is seen that majority scored low on comprehension, which indicates that the respondents understanding of the story was limited. As children with ADHD have difficulty in focusing and also sustained focus, reading comprehension is impaired. They understand the words read but are required to read the content repeatedly in order to grasp the concepts. In addition, a very short attention span also contributes to difficulties in reading comprehension. Most studies on reading and ADHD also validate this outcome. Ghelani *et al* (2004) reported it is clear that if an individual with ADHD has a disorder involving basic

Table 1. Distribution of respondents based on Concepts of Print

S. No	Subskills in Concepts of Print	Yes		No	
		Frequency	Percentage	Frequency	Percentage
1	Start from the front page & shifts to the last page of the book	83	97.6	2	2.4
2	Systematically progresses from one page to another	74	87.1	11	12.9
3	Scanning from left to right in a page	58	68.2	27	31.8
4	Systematically scanning word to word	35	41.2	50	58.8
5	Systematically shifting from one sentence to another	35	41.2	50	58.8
6	Looks at pictures for reference	73	85.9	12	14.1

Table 2. Distribution of Respondents based on Components in Decoding

S.No	Components in decoding	Yes		No	
		Frequency	Percentage	Frequency	Percentage
1	Spells and reads	41	48.2	44	51.8
2	Whole word reading	47	55.3	38	44.7
3	Punctuation	11	12.9	74	87.1
4	Systematic scanning	55	64.7	30	35.3
5	When faced with unfamiliar word, asks for help	41	48.2	44	51.8
6	When faced with unfamiliar word, tries to read before shifting to the next word	45	52.9	40	47.1
7	When faced with unfamiliar word, guesses the word based on context	28	32.9	57	67.1
8	When faced with unfamiliar word, continues to read	32	37.6	53	62.4
9	Substitution of the words	43	50.6	42	49.4

Table 3. Overall Comprehension of Respondents

S.No	Scores based on answers to story related questions	Frequency (n = 85)	Percent (100%)
1	Poor	4	4.7
2	Low	36	42.4
3	Average	25	29.4
4	High	19	22.4
5	Excellent	1	1.2
	Total	85	100

word reading, then he/she will most likely also have difficulty with reading comprehension; however, studies of children with ADHD without reading basic word reading deficits have shown that individuals with ADHD often have difficulties in reading comprehension even though they have intact word reading accuracy (Ghelani *et al.*, 2004), perhaps as a result of their ADHD-related executive function deficits (Sesma *et al.*, 2009) (Mark Mahone, 2015). This finding also coincides with research studies that those with ADHD perform more poorly on measures of reading comprehension than normally developing peers (Brock and Knapp, 1996; Ghelani *et al.*, 2004; Genevieve Mackenzie, 2012)

DISCUSSION

From the findings, it is evident that children with ADHD are lacking skills of print concepts i.e. book and print awareness. This makes them poor readers and affects their literacy development. Research shows that concepts of print knowledge positively influences a child's language development. When a child has a good concept of print knowledge it strengthens children's phonemic awareness abilities (Morris, Bloodgood, Lomax, and Perney, 2003), influences language development, phonics, word reading, reading, and writing development (Morris, 1993; Roberts, 1992), helps children connect new reading information to known background knowledge of environmental print (Reutzel, Fawson, Young, Morrison, and Wilcox, 2003), differentiates good and poor readers at the end of first grade (Johns, 1980) (Print concepts, 2015).

It is therefore important to focus on print concepts from an early age for children with ADHD to bring them to be at par with non ADHD readers. There are many ways to facilitate print concepts. Establishing a library corner in the home and classroom is an effective way for teachers and parents to expose the children to books at an early age. Children also learn print concepts from their environments (signs, logos, cereal boxes), through seeing and hearing adult's model reading and writing (Heroman and Jones, 2004), by participating in whole-group and small-group reading sessions that extend their experiences with print and through repeated exposure to books and various types of print (Strickland and Schickendanz, 2004). Reading comprehension forms an integral part of reading and its importance should not be undermined. Comprehension plays a vital role in academic achievement and general success. When reading comprehension is impaired in children with ADHD, the purpose of reading is not achieved. The child does not gain any knowledge or pleasure from reading, which in turn discourages active reading. The less the child is interested, the less motivated he is to read. The following studies support this fact. There is also evidence that children who are skilled at reading comprehension read more than children who are poorer at comprehending, and reading for pleasure may result in better grades in college and university (Mol and Bus, 2011). In contrast, children with poor comprehension may choose to read less, which may limit the development of their reading skills (Mol and Bus, 2011). This, in part, may contribute to the finding that poor comprehenders are at risk of poor educational outcomes overall (Cain & Oakhill, 2006). Further, poor comprehension has been found to impair health literacy

(Needham, Wiemann, Tortolero and Chacko, 2010) (Genevieve Mackenzie, 2012). Hence the above findings outline the need to expose children with ADHD to books, provide intense training in reading strategies, and also encourage reading for pleasure. This will prepare them to overcome obstacles they face while reading, thus providing them a rich and fulfilling experience with print.

Conclusion

Most children achieve early reading skills by the age of seven and then on reading becomes an unconscious effort. Where as in children with ADHD, reading skills need to be taught and focused on. Reading skills involves the recognition of individual letters to form words that leads to reading fluency and thus comprehension. Therefore it is essential for parents and teachers to promote reading from an early age, consequently establishing basic reading skills in children with ADHD. When this development is achieved, the child with ADHD can be further equipped with supportive reading strategies to become a competent reader.

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