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RESEARCH ARTICLE

PREVALENCE OF LEARNING DISABILITY IN SCHOOL GOING CHILDREN OF DEHRADUN - A SURVEY STUDY

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Abstract

Objectives. Screening of learning disabled Indian children out of the children of age group 8 - 11 years using Learning Disability Diagnostic Inventory(LDDI), to describe the various parameters like age dominance, sex dominance, limb dominance among the learning disabled children, to describe about the classroom performance of learning disabled children.

2. **Method and Procedure**. Permission of principal was taken to distribute the forms to the teachers in the school. Consent form and assessment forms were sent to the parents of 1500 subjects (n=1500). 1300 consents were received back, 200 forms were dropped, 1300 subjects were screened on the basis of inclusion and exclusion criterion, (n=1300). Teachers were given a familiarizing session to LDDI (non titled) and their reliability was checked and the teachers whose reliability coefficients (inter and intra rater) varied from 0.6-0.8 (Spearman Rank co relation applied were applied.)were selected for the study.Forms were distributed to the teachers.1120 filled forms were received after a week of distribution (n=1120), 120 forms were excluded.

Forms were analyzed and on the basis of the scoring obtained , subjects were categorized under one of the following unlikely, possibly, learning disabled.

3. **Results & Conclusion**. 1050 school going children of Dehradun of age group 8-11 years were assessed using the LDDI and the forms were then analyzed, 278 children were screened out of the 1050 children to be having learning disability, accounting 26.4%. Thus the result of present study concludes that the prevalence of learning disability among the school going children of Dehradun of age group 8-11 years is 26.4%.

INTRODUCTION

Learning is an ongoing process which begins with birth and continues throughout life thus enabling a human being to progress more and more as the age advances, but for those for whom learning is a difficulty life is having a different picture ever since their childhood. Especially in scenario like India where children spend one third of their waking time in school-related activities, mainly because academics is given prime importance by parents and society , a child who is not performing well in studies because of any reason, therefore, becomes a source of immense stress for parents, which in turn, reflects on the child's persona and self esteem[1]. Often it is assumed that such low performance is because the child is not paying attention or is not trying failing to understand that the origin of such

low performance could have some neurological basis. A child who has difficulties with learning cannot try harder, pay closer attention, or improve motivation on their own; they need help to learn how to do those things, as they are suffering from an ailment called LEARNING DISABILITY. Children with learning disability are defined by IDEA (Individuals with Disabilities Education Act) as." Those children who have disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written. Which may manifest itself in imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations."

The term includes conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. This tern does not include a learning problem that is primarily the result of visual, hearing or motor disabilities, of mental retardation of emotional disturbance, or of environmental, cultural or economic disadvantage[2].

When LD is not diagnosed early, parents are often surprised to find out their bright and imaginative child is struggling in school which put further pressure on the parent and the child. The lack of awareness about learning disabilities among the general public parents, and teachers is yet another issue because of which the learning disability goes unnoticed[3]. The consequences of these unrecognized learning disabilities are rarely confined to school or work. Many areas of life are affected, including the role of the person with learning disabilities in their family, relationships with friends, not-academic functioning such as sports or dancing, self-esteem and self-confidence to handle daily situations and may interfere with choosing and beginning employment and marriage[4]. The main purpose of identifying children is to rehabilitate the child through programs that optimize and maximize child's overall development. Surveillance, screening and assessment of learning disabilities is a gateway to the intervention and support services that a learning disability child and his parents might require. Kalish and Pressler (1980) identified five areas of function for physical or occupational therapist in the educational environment, that includes screening and evaluating children, planning the program on basis of evaluation, designing treatment activities to meet program goals and to give carry over services to the teachers and parents[5]. An early detection of learning disability can reduce the psychological constrain a child undergoes because of being behind his peers group and can strengthen the relationship between parents and child. Assessing the learning disability also has an educational value for parents by providing an opportunity to teach parents about the various shortcomings of child.

Children with learning disabilities represent the highest incidence among 13 disabilities category representing 50% of the total population of children receiving special education. According to a 2002 report to congress on implementation of IDEA, nearly 2.9 million students aged 6-21 years are currently receiving special education services for learning disabilities. Overall, the estimated prevalence of learning disabilities is approximately 7-8% of children enrolled in public schools[6]. In India the learning Disability movement is only a decade or two old. We lag behind the western world in this regard by around 50 years. During the last decade, the movement has definitely picked up momentum and more and more children with this 'invisible handicap' are being identified. In spite of this, there is paucity or epidemiological studies conducted in India to determine the exact prevalence of learning disabilities[1], Epidemiological studies of learning disabilities in India are burdened by problems ranging from identification, assessment, to socio-cultural factor unique to India.

Standardised tools for testing are not easily available in India, nor are indigenous tools for identification of processing deficits, intelligence testing and testing for proficiency in reading and writing available[7]. On the contrary various tools are devised and used in western countries for the identification of learning disabilities like Learning Disability Evaluation Scale-Renormed (LDES R2). Children Non Verbal Learning Disabilities Scale,, Learning Disability Diagnostic Inventory (LDDI).

In this study LDDI was used because it was primarily designed for use by non medical personnel's, is learned with relative ease, is not very time consuming and much experience has been accumulated on its value as screening test. The major strength of LDDI lies in its simple format, which allows for ease and accuracy in administration, scoring and interpretation of result.

The LDDI includes direct observation of child by the teacher and on the basis of that observation and interaction, the teacher fills the respective scales of the form. The LDDI consists of six scales, which require an individual with first hand knowledge of the students' skill to rate the behavior in each area. The scale includes Listening, Speaking, Reading, Writing, Mathematics and Reasoning.

This scale has been used in various other studies, Lock, Robin H : Layton in the year 2002 has used for identifying the learning disability in post secondary students[8] LDDI has been used in western countries, however in India this scale is being used for the first time. Although some more studies have been conducted in India (Ramaa 2000 and Nelisen H, 1984)[7] using different questionnaires and scales, but still we do not have the clear idea about the prevalence of learning disabilities in India nor do we have any standard scale available which can be used in

Indian population[7]. Therefore this study aims at getting the prevalence of learning disabilities in Dehradun domain of Indian Territory such that intervention programs can be started for these children as early as possible.

STATEMENT OF THE STUDY

Learning Disabilities constitutes one of the major but ignored disabilities in India. The heterogeneity of persons with learning disabilities has made it difficult to identify, assess and intervene the condition, also there is a paucity of epidemiological studies conducted in India to determine the exact prevalence of learning disabilities. This study tries to screen and identify the children with learning disability by use of Learning Disability Diagnostic Inventory (LDDI) for Indian population in Dehradun.

INCLUSION CRITERIA

1. Subjects of age group 8-11 years of either gender.
2. Subjects whose parents gave consent for the study.
3. Subjects whose teachers were cooperative to conduct the study.
4. Subjects who were physically fit, not suffering from any acute problems.

EXCLUSION CRITERIA

1. Children with epilepsy, depression, ADHD, mental retardation, auditory or visual problems, or emotional problems due to stress at home.
2. Teachers who were not cooperative and whose reliability coefficient was less than 0.6.

METHOD

Subjects were assessed for learning disability using the Learning Disability Diagnostic Inventory (LDDI).

PROCEDURE

The permission of the principals of the various schools was taken to distribute the forms to the teachers. 1500 consent and assessment forms were distributed to be filled by the parents of the subjects. Out of the 1500 distributed forms only 1300 completed forms were received. These 1300 subjects were then screened on the basis of inclusion and exclusion criterion.

The teachers were given a familiarizing session to LDDI and their reliability was checked (Inter and Intra rater reliability) using the Spearman Rank Correlation method, only those teachers whose reliability coefficient varied from 0.6-0.8 were selected to fill the forms. The forms were then distributed to the selected teachers. The subjects were screened by the teacher for the following items that were arranged on the test form (LDDI) :

(a) Reading. (b) Writing.
(c) Listening. (d) Speaking.
(e) Mathematics.
(f) Reasoning.

Testing was done by the teacher as following :

Each of the six sections of the test form consisted of fifteen items. Each of the test items represented a behavior, which was rated by the teacher on a scale of 1-9 where 1 represented maximum frequency of the behavior being elicited and 9 represented the rarest. After one week of distribution the forms were collected. Out of 1300, only 1120 filled forms were received, 180 forms were excluded.

The data obtained was then documented. The score for each variable was calculated, the raw score was then converted to percentile and stanines. On the basis of stanines the subject was categorized under one of the following, unlikely, possibly, learning disability.

RESULTS

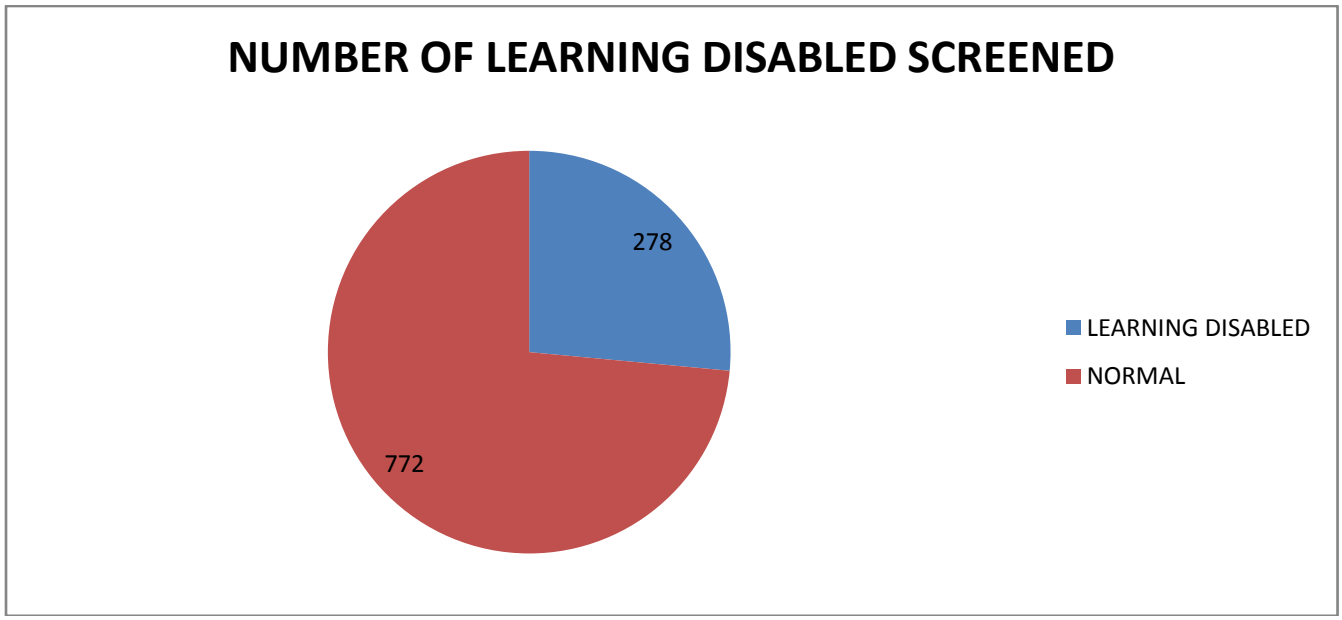
POINT PREVALENCE

The point prevalence is given by the formula:-

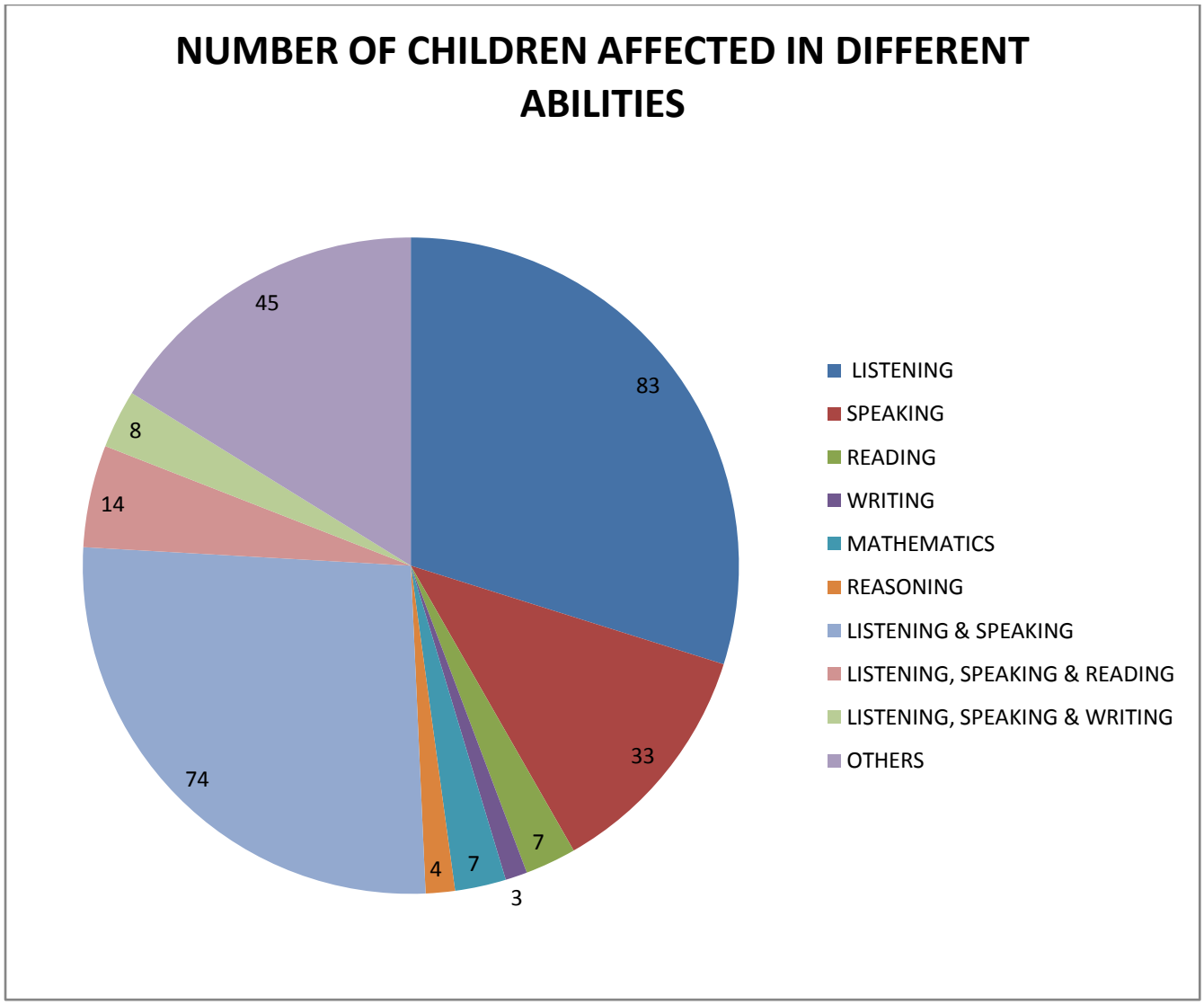
$$\frac{\text{Number of all current cases (old and new) of a specified disease existing at a given point in time.}}{\text{Estimated population at the same point I time}} \times 100$$

Learning of learning disabled screened out = 278.

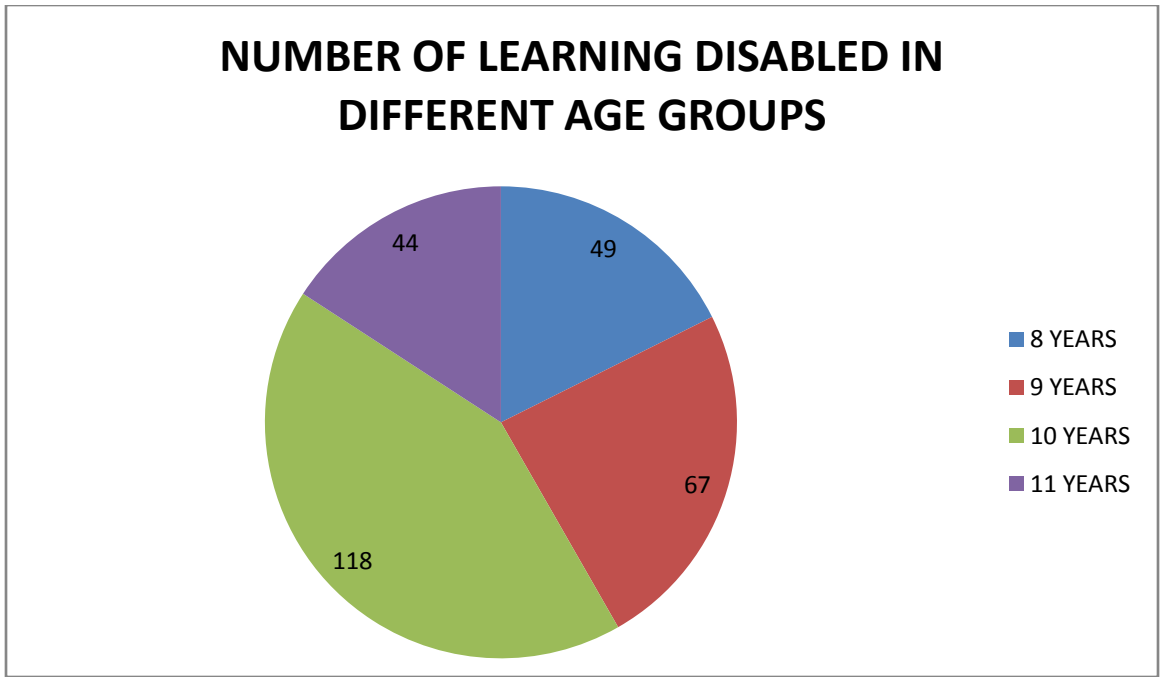
Estimated population - 1050
Therefore the prevalence of learning disability in school going children of Dehradun =
278 / 1050 x 100= 26.4%



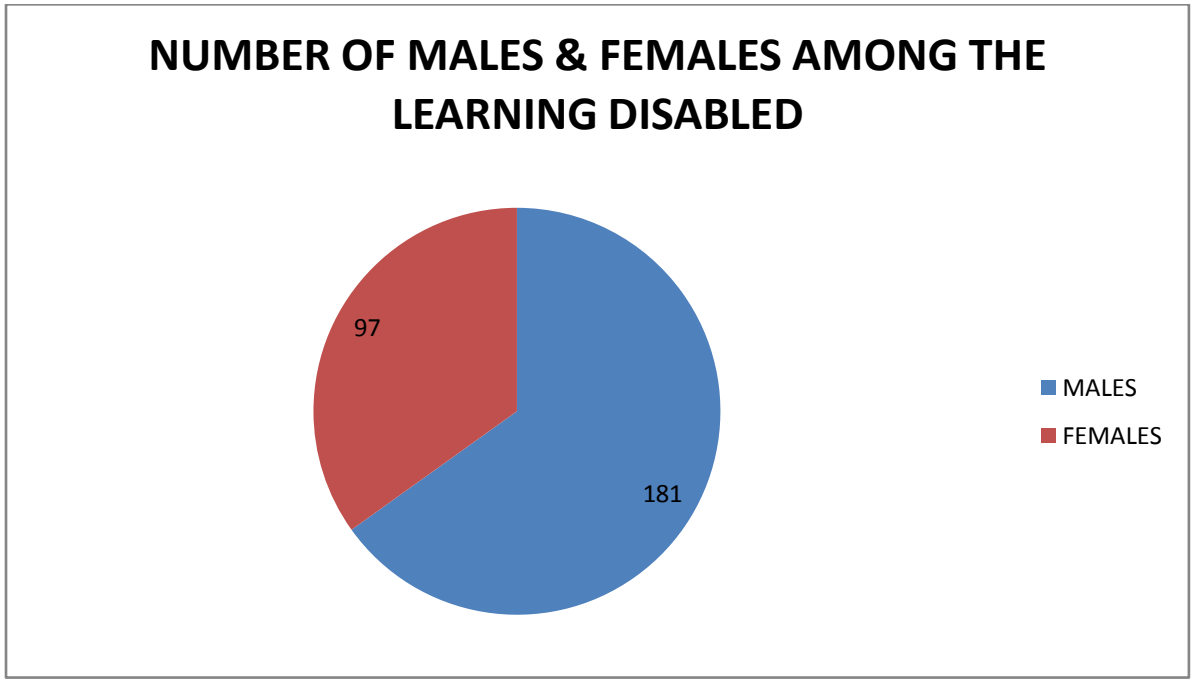
The pie chart depicts the total number of learning disabled screened out of the total population which came out to be 278 i.e 26.4%.



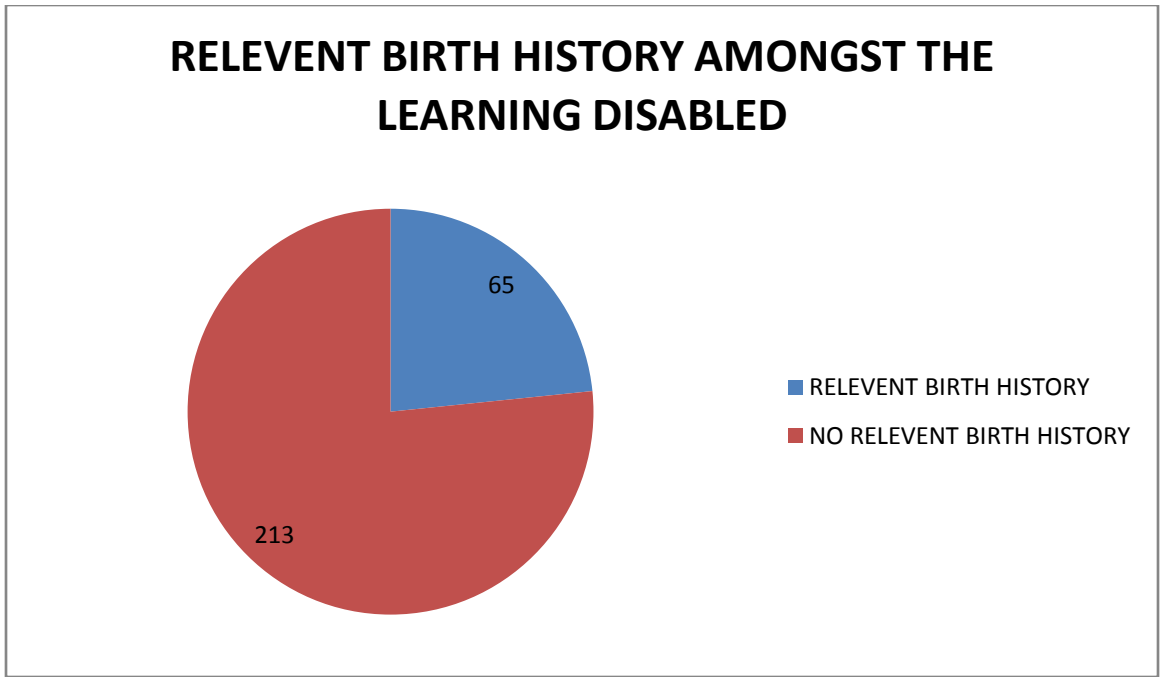
The pie chart depicts the number of learning disabled subjects affected in different abilities with 83 in listening,33 in speaking,7 in reading, 3 in writing, 7 in mathematics and 4 in reasoning.74 were affected in listening and speaking, 14 in listening, speaking and reading;8 in listening, speaking and writing and 45 were affected in different other combinations



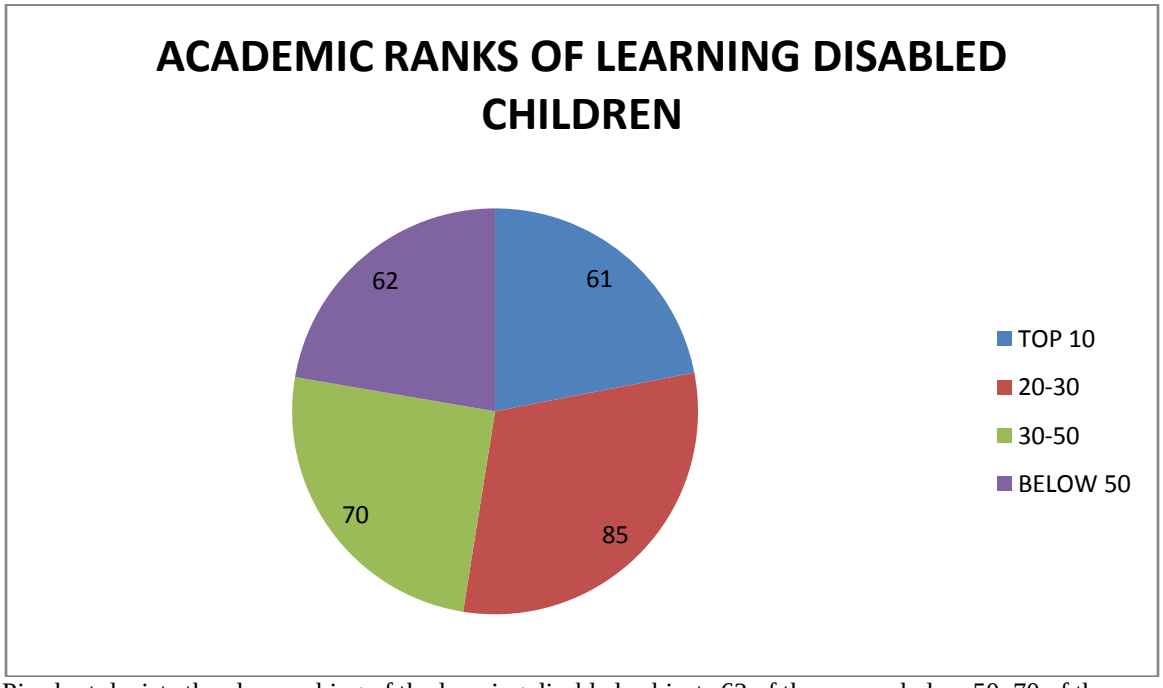
The pie chart groups the learning disabled subjects into different age groups,118 being 8 year old, 67 being 9years old,49 being 10 years oldand 44 being 11 years old.



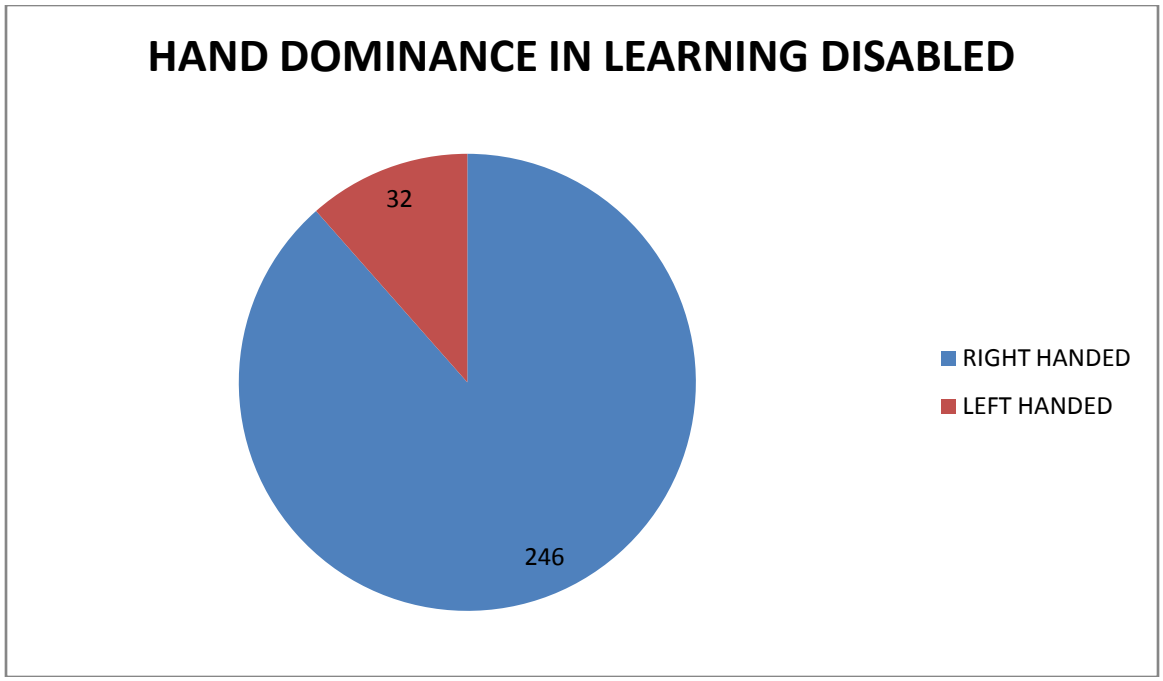
Pie chart depicts the number of males and females amongst the 278 screened learning disabled,181 being males and 97 being females



Pie chart explains that out of the 278 screened subjects 65 had a relevant birth history whereas 213 were not having any relevant birth history



Pie chart depicts the class ranking of the learning disabled subjects,62 of them were below 50, 70 of them were of a range of 30-50,85 secured ranks between 20 -30 and 61 were amongst the top 10



Pie chart gives the hand dominance ,246 were right handed whereas 32 were left handed

DISCUSSION

The LDDI is devised to be used above 8 years of age up to 17 years of age but in this study the lowest limit of the age group was taken as an early identification provides better prospects for future assessment and intervention[2,15]. Therefore an age group of 8-11 years was chosen.

Viewing through the results out of the total included forms in the study which were 1050, the students who were screened to be learning disabled were 278 in number constituting around 26.4% which accounted to be a little higher than concluded by Sunil Thomas in 2003[9]
.and G Ried Lyon[16] The result obtained out of the 1050 forms may be slightly on a higher side owing to cultural setup of India, being a multilingual and multicultural country, the language of testing instrument is occasionally unsuitable to Indian students and teachers who may not be proficient in English. Also teacher may have brief and token interaction with children in an average of 55 students in each class thereby leading to a form, which is not truly describing the students behavior but is rather filled up as per the teachers convenience. Also over identification of students with learning disabilities has been discussed as a potential constrain in identifying learning disabilities[17,18].

Out of the 278 learning disabled screened, majority had disability in listening accounting 83 in number followed by 33 in speaking. The children who had both these parameters affected were 74 in number. 7 were affected in reading, 3 were affected in writing, 7 in mathematics and 4 in reasoning. The high number affected in listening and speaking can be explained in view of the Orton's theory of delayed cerebral dominance. He asserted that the left hemisphere did not develop dominance for preferred hand and language processes, which therefore led to deficiencies in organizing language information but the same could not be explained according to other theories of LD which were lack of hemispheric specialization and inadequate hemispheric communication[2]. Also the researches done have shown a direct relation of listening and speaking abilities with reading abilities[2]. Whereas the result obtained from this study did not show any relation among the three parameters. The high incidence of listening and speaking may be because the test items presented in these two sections were more subjective in nature therefore relied heavily on the teachers understanding of the language.

Out of the 278 screened children 181 were males and 97 were females. The higher incidence in males in the result is in accordance with the previous estimates (2004) for learning disabilities according to which boys are more likely than girls to be identified as learning disabled, 10% males and 6% females were reported to be affected[14].

Out of the 278 subjects, an increasing number was seen as the age increased 49 subjects were 8 years old, 67 were 9 years old, 118 were 10 years old which is in accordance with bloom B (2002)[11]. Whereas a decreased number of 44 in 11 years age group could not be explained.

The result obtained shows that most of the students screened as LD were low rankers which points that LD get noticed when the child is unable to cope up with the studies 85 of the 278 LD children occupies the rank between 20-30, 70 of them occupied ranks between 30-50 whereas 62 of them were below 50 but the prevalence of 61 students who were among top 10 rankers was questionable. This could be explained on the basis that these many students had better opportunities to improve learning or the teachers proficiency for filling the forms was questionable.

Of the 278 learning disabled subjects 246 were right handed and 32 were left handed this could be explained that generalized slight left hemisphere is not sufficiently severe to cause left handedness[12].

The various causes known for LD can be classified broadly as problems with birth and incidents after birth[2]. Of the 278 learning disabled samples 38 gave the history of problems with pregnancy and birth whereas 10 gave around history of incidents after birth like head injury, 27 were low birth weight and 45 females had cesarean section. The rest 230 samples did not give any relevant history. The same is also concluded in a paper presented by the national joint committee on learning disabilities where it is stressed that some children with history of birth complications may exhibits typical developmental patterns which may points towards LD, whereas other children without such history may also struggle to learn and may require formal assessment and intervention[13].

In the study a mixed response was observed among the principals and teachers and the parents about the participation of the child in the study. It was noticed that some of the principals and the teachers approached were not familiar with learning disabilities and were therefore not enthusiastic about participating in the study, some were aware but considered that the same study should be carried out in special schools and not in mainstream schools and therefore returned the forms unfilled but others left were aware of the condition and also understood the necessity to screen children for learning disabilities. Some parents were very enthusiastic and made it a point to approach telephonically to inquire in detail about the study and insisted that the result of the same should be provided to them.

CONCLUSION

1050 school going children of Dehradun of age group 8-11 years were assessed using the LDDI and the forms were then analyzed, 278 children were screened out of the 1050 children to be having learning disability, accounting 26.4%. Thus the result of present study concludes that the prevalence of learning disability among the school going children of Dehradun of age group 8-11 years is 26.4%

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