Original Article

Indian Journal of Trauma and Emergency Pediatrics
Volume 8 Number 1, January - April 2016
https://dx.doi.org/10.21088/ijtep.2348.9987.8116.3

A Study on Scholastic Backwardness in School Going Childrens in 5 To 15 Years Age Group

Rajasekhar Reddy T.

Abstract

Introduction: It is generally observed that at least 20% of the children in a class room get poor marks – they are scholastically backward. Poor marks must be seen as a symptom reflecting a larger underlying problem in children. *Methodology*: Hundred scholastically backward children who were identified with the help of the class teacher fifty children were selected out of 340 children studying in the first school and the other fifty were selected from amongst the 614 children studying in the second school, based on the sample size required for the study four children studying in the first school were being brought up in a hostel. *Results*: A child classified as a slow learner would require extra coaching at school and home. It was also observed that out of the 56 slow learners cause could be attributed for the scholastic cause in only 40. To distinguish the remaining 16 from mixed learning disabilities assessment of IQ needs to be done. *Conclusion:* Children with scholastic backwardness and advantageous socioeconomic conditions must be subjected for assessment by GLAD to look for Specific Learning Disability.

Keywords: Scholastic Backwardness; Glad; Sld.

Introduction

Education is one of the most important aspects of human resource development. Every child should have the opportunity to achieve his or her own academic potential. Indian parents give high priority to their children's education.

Therefore, a child who does not do well in studies is cause for major tension in the family unit. A child whose scholastic problems have not been adequately addressed and sorted out, is bound to carry a lifelong burden, as a result of which he/she would have difficulties with completion of school, interpersonal relationships, higher education, prospects for employment, marriage etc [1].

Poor Scholastic Performance

Poor marks must be seen as a symptom of a larger underlying problem in children. This symptom results in child having low self-esteem. If the child is not performing, there has to be an underlying cause that needs to be assessed [2].

Activity Based Learning

The present schools in Tamil Nadu are slowly replacing the previous system of marks with ABL (Activity Based method). Competencies are split into various parts and converted into different activities. Child's progress is assessed through annual assessment charts, not by marks.

Contributory Factors

In a multi-linguistic Indian educational setting, children often have to learn to study through the medium of language not their own. They also need to learn 2 - 3 languages simultaneously. The following are the common causes for poor scholastic performance of the child.

In the Home Environment

- ☞ Deprived, discordant, un-stimulating home environment
- ☞ Lack of adequate facilities for studying, Noisy homes 3

Author Affiliation: Junior Consultant, Department of Paediatrics, New Life Thumbay Hospital, Chaderghat, Hyderabad, Telangana.

Reprint Request: Rajasekhar Reddy T., Junior Consultant, Department of Paediatrics,New Life Thumbay Hospital, Chaderghat, Hyderabad, Telangana.
E-mail: rajtanguturi7@gmail.com

- ☞ Lack of encouragement for studying and lack of role models
- ☞ Parental illiteracy
- ☞ TV viewing habits [4]
- ☞ Significant life events
- ☞ Child abuse
- ☞ Single parent, separated parents
- ☞ Alcoholic, workaholic parents
- ☞ Exposure to toxins such as lead, endosulfan [5] and other organophosphate compounds [6]

In the adolescents- daily study pattern, family environment conducive to learning, education status of parents, personal distractions and attitude towards studies contribute to academic performance.

In the School Environment

Recent change of school / medium of teaching

Over-expectation parents and teachers

Poor / inadequate teaching methods

Overcrowded classrooms

Role based learning methods and poor study skills

Teacher insensitivity to problems of children with poor scholastic performance.

In the Child

Etiology is diverse and many factors may be overlapping and coexistent:

Mental Retardation (MR)

Children with mental retardation have a significantly sub average general intellectual functioning, with IQ below 70.

Slow Learners

Children with an IQ range of 70 – 89 are classified as slow learners.

Language Disorders

McKeith and Rutter estimated on the basis of literature review that 1% of all children enter school with a marked language handicap.

Hearing Impairment

Even mild to moderate hearing loss in childhood is associated with poor language development in early childhood and with lower educational achievement [15] and employment opportunities later in life.

Visual Impairment

Visual impairment, often unidentified, may cause learning difficulties [16]. Children with visual impairment may present with certain features such as deterioration in handwriting and slowness in copying from the board.

Hypothyroidism

Hypothyroidism is a cause for scholastic backwardness if the condition is not diagnosed and treated early.

Prematurity, Low Birth Weight

Research has consistently demonstrated a greater risk for learning-related problems in preterm, low birth weight children [7,8].

Developmental Coordination Disorder (DCD)

Children with developmental coordination disorder have difficulty learning and performing age-appropriate perceptual-motor skills in the absence of diagnosable neurological disorders [9].

Attention Deficit Hyperactivity Disorder (ADHD)

Untreated ADHD is one of the important causes for poor School performance [10].

Chronic and Recurrent Illness

Several medical problems in the child contribute to learning problems. This may be due to the direct effect of the condition itself, or due to effects leading to recurrent school absenteeism, adverse effects of medication and poor self esteem affecting motivation and performance.

Our Institute has a Child Guidance Clinic, which is run by experts trained in child psychiatry, to deal with common problems in child psychiatry. The common problems managed at the clinic include breath holding spells, mental sub normality, ADHD, temper tantrums. Poor school performance is one of common reasons for referral to the Child Guidance Clinic.

Methodology

The study was conducted as a cross sectional study

of descriptive type from August 2011 – March2013. Hundred children who studied in two private schools coming under the purview of school health Institute of Child Health and Hospital for Children were recruited into the study.

These hundred children were identified by the Class teacher as scholastically backward based on his failure to progress into the subsequent grade in the Activity Based Learning method in one or more subjects. Both individual and institutional consent obtained prior to enrolment in the study.

Scholastic Skills

GLAD (Grade Level Assessment Device) was used to assess scholastic Skills. (Annexure IV) It was procured from the National Institute of Mental Health – NIMH, Hyderabad and it was translated into the Tamil version by vernacular experts and back translated. The original and the back-translated versions were compared and further corrections were made. This tool was administered to 10 children studying in the same two schools – identified as average performers to check the empirical usefulness of the tool. All the average performing children were able to do the tool well. Inter rater variability also checked empirically.

Finally the tool was administered to the scholastically backward children. The GLAD scale assesses the following domains of Scholastic skills:

Reading Skills

Reading comprehension

Writing Skills & Written Expression

Arithmetic skills

The duration to complete the two subjects – Tamil and Mathematics were recorded. The incentives required and the excuses the child gave while performing the test were also recorded in the data collection form. The results thus computed were entered into a master chart. The observations that were made are discussed subsequently.

The children who had impairments in vision or hearing were referred to appropriate centers for help, those who were found anemic were treated with iron supplements and children with Specific Learning Disability were referred to the Child Guidance Clinic.

Results

The age distribution of the 100 children who had been recruited into the study is depicted below:

Table 1: Age distribution (n=100)

Age in completed years	Number (%)
7	4(4)
8	64(64)
9	24(24)
10	4(4)
Not known	4(4)

68% of the children were 8 years and below and 28% of them were 9 years and above.

Table 2: Sex distribution(n=100)

Sex	Total	Scholastically backward(n)	(%)
Male	570	60	9.5
Female	384	40	9.6

The ratio of male: female is 3:2 among the 100 children who were recruited into the study. There is no sex difference in percentage of children identified as scholastically backward. However it is worth noting that substantially lesser no of female children have been recruited into the two school compared to the male children population.

Out of the selected children 60% of the children lived in own houses or pucca houses, whereas 36% of them were being brought up in kutcha and tent houses. 4 Children were brought up in hostel

It was observed that 36%, 52% and 12% of children read in tube, bulb and common lights respectively. 12% of the children still use open air defecation, inspite of being in urban areas.

Ninety two children were living with their biological father and their biological mother. (Father and Mother of two children each had expired). 12% of the children still use open air defecation, in spite of being in urban areas.

Out of the 94 fathers, it was observed that 18 – 20 % were educated upto the level of either middle or Primary school, 4% beyond the primary school and 28% illiterate. Maternal education level was up to primary, middle and high School in 24, 30 and 12 children respectively. The majority of the children

Table 3: Education

Education	Father (%)	Mother (%)
(1)Post High school	4 (4)	2 (2)
(2)High School	20 (20)	10 (10)
(3)Middle School	18 (18)	30 (30)
(4)Primary School	24 (24)	24(24)
(5)Illiterate	28 (28)	28 (28)

Table 4: Parental o ccupation (n=94)

Occupation	Father (%)	Mother (%)
(1)Profession	4(4)	2 (2)
(2)Clerical / Shop owner	14(14)	4 (4)
(3)Skilled Worker	46 (46)	32 (32)
(4)Unskilled worker	26 (26)	34 (34)
(5)Unemployed	4 (4)	22 (22)

Table 5: Patterns of difficulties in reading(n=100)

Pattern of reading	Number of children with reading pattern (%)
(1)Not able to read the passage	40(40)
(2)Able to read the passage with no difficulty	12(12)
(3)Able to read the passage with difficulty	48(48)
(A)Spell aloud before blending	24(24)
(B)Too slow reading	24(24)
(C)Mispronouncing words	6(6)
(D)Misuses	8(8)
(E)Difficulty in using few letters in tamil	4(4)
(F)Omit a word	4(4)
(G)Misses symbols	6(6)

(46%) had fathers who were masons by profession and only 4% of the children had fathers who were in professional services like school teacher. Amongst the 100 children with Scholastic Backwardness 74% of mothers are employed.

Forty children could not read anything in the passage. Forty eight children read the passage with lots of mistakes-of which thirty two children could read only words, but not sentences. The remaining twelve children read the passage with no difficulties.

Reading Comprehension

To assess the reading comprehension the childrenwere administered two passages and questions were asked from these passages, to assess their comprehension of these passages.

- One passage was read out to the child by the investigator
- One passage had to be read by the child

Twelve were able to read the passage and answer most of the questions / fourty eight of them read the passages with difficulty and the following problems were noted in many of them. Of these 48 children, 12 did not have any comprehension of the passage they had read. Out of hundred children, forty children could not read the passage. Writing skills and written expression: to assess the writing skills of these children, they were told to write 5 lines about their school, and passage was dictated to them- both these exercises are part of GLAD. The following are the problems identified in them as they performed the GLAD test.

Table 6: Patterns of reading comprehension recognized (n=100)

Pattern Recognized	Number of children (%)
(1)Not able to read and answers no questions	40(40)
(2)Read with no difficulty answers all questions	12(12)
(3)Read with difficulty but with no comprehension	12(12)
(4)Read with difficulty but with some comprehension	36(36)
a)Refers to answer	
b)Refuses to read large Passages	14(14)
c)Answers need to be pointed	14(14)
d)Wants appreciation for each test	4(4)
e)Prompts required	2(2)
f)Wrong answers	4(4)
g)Refers to text	2(2)

Out of the 100 Children who Performed the Two Tests

- 4 children performed the tests well, made no mistakes

Table 7: Patterns of assessment of writing skills

Sl. No	Pattern recognized	Number n (%)
1	Able to write with no difficulty	4(4)
2	Able to write alphabets only	48(48)
3	Able to write single words only	30(30)
4	Able to write sentences with lots of mistakes	22(22)
	a)No spacing	20(20)
	b)Ignore punctuation	16(16)
	c)Overwriting	12(12)
	d)Omits dots	8(8)
	e)Macro writing	8(8)
	f)Mixes symbols	8(8)
	g)Spelling mistakes	6(6)

Table 8: Patterns of assessment of arithmetic skills(n=100)

Pattern Recognised	Number of children(%)
(1)Not able to do any calculations	60(60)
(2)Able to do all calculations	8(8)
(3)Does calculations with lot of difficulty	32(32)
(A)Wrong symbols	14(14)
(B)No place value	8(8)
(C)For addition draws line	8(8)
(D)For subtraction draws line	8(8)
(E)Wrong identification of symbol	8(8)
(F)No carry over in addition	4(4)
(G)No borrowing in subtraction	4(4)

- 48 children had poor writing skills- able to write only alphabets
- 52 children had the capability to judge and write- (of these 52,30 wrote only words pertaining to their school and 22 wrote sentences pertaining to their school with lot of mistakes)

Arithmetic Skills: To assess the mathematical skills of the children the following tests were administered to these children which are a part of GLAD.

- Ability to read 10 numbers
- Comparison between two numbers
- Read text sums and answer questions
- Create fractions from simple pictures
- Write decimals from rupees and paise

Out of the hundred children who were administered these tests, 60 children could not do any calculation, 8 children performed most of the calculations with minimal difficulty (however with smaller numbers). Difficulties in the remaining is depicted above.

Comparison: When comparison between two numbers was assessed, it was noted that-

- 26 able to apply correct symbols with small numbers
- 4 children performed the operations 100% correctly
- 10 children knew < and >, but not =
- 14 children understood the concept but did not write
- 46 children did not understand the whole concept

None of them were able to perform division and no one of them were able to perform the text sums. It was

Table 9: Pattern of excuses made by the children (n=46)

Sl. No	Excuse form	Number n (%)
1	Attend to toilet	10(10)
2	Expresses tiredness	16(16)
3	Want to get rubber	16(16)
4	Want to sharpen pencil	28(28)
5	Feeling hungry	10(10)

Table 10: Final diagnosis based on comparison of the scholastic skills and general abilities of the child (n=100)

Sl. No	Diagnosis	Number (%)
1	Subnormal Intelligence	20(20)
2	Specific learning disability	24(24)
3	Slow learner	56(56)

also noted that out of hundred children only four children were able to create fractions out of the figures that were provided, and only two children had basic concept of decimals.

Duration and Incentives

Duration of Tamil test the duration taken to complete the tamil test was <1/2, ½-1 and >1 hour in 40, 28 and 32 children respectively. Most of the children who completed in <30 minutes have an ability to read and write tamil until the level of alphabets.

Duration of Mathematics The duration taken to complete the tamil test was <1/2,1/2-1 and >1 hour in 68, 24 and 8 children respectively. Most of the children who completed in <30 minutes have a knowledge of numbers until <100 and are unable to perform basic arithmetic like addition, subtraction etc., Hence hand over the test sheet very early.

Incentives Required and Excuses made: When the children were administered GLAD, thirty four children required small incentives like chocolates, coloring pencils, crayons etc. Out of the 100 children who were administered GLAD, 46% of them made excuses to avoid performing the test.

Our study showed 24 children to have SLD. Of these 24, 6 had difficulty each in written expression, reading, comprehension and arithmetic skills. These children have difficulty in performing in one domain, good performance in all other domains. These children would require remedial education by trained personnel. A child with subnormal intelligence would require an assessment of IQ and training in special schools. A child classified as a slow learner would require extra coaching at school and home. It was also observed that out of the 56 slow learners cause could be attributed for the scholastic cause in only 40.To distinguish the remaining 16 from mixed learning disabilities assessment of IQ needs to be done.

Discussion

In this study, no sex difference could be recognized in children with SLD. The same observation has been made by Shaywitz SE et al [11] Also, the children with SLD were living in relatively advantageous housing, lighting conditions, water supply and personal hygiene conditions as compared to the conditions prevailing in the homes of Slow Learners. This emphasizes the already known fact on SLD that these children are not able to do well in school inspite of being reared in good socioeconomic conditions. The adverse circumstances under which the Slow learners may be a significant contributory factor for their scholastic backwardness [12].

In this study population, 28% of both fathers and mothers were illiterate. Same results were shown by the study by MKC Nair et al [13]. The low level of education may lead to poor stimulation and low motivation of the children towards studies. Parents of 54 children consume alcohol regularly. This can have a psychological impact on these children – which can affect school performance. The same observation has been made by Shenoy et al[1] In this study, sixteen children with Specific Learning Disability had a sibling with a similar problem. Hence, the existence of a genetic factor operating in these children need to be operated [14]. Speech problems were present in six of the

Twenty four children with SLD - This is in concurrence with other Van Alphen P et al that Language delay is an early marker of SLD.

The mean duration of Play was 53 minutes which is lesser than the duration mean duration of television viewing 57 minutes. A study by Shenoy et al [l2] reported that decreased hobbies like no hobbies like No play activity is a risk factor for Scholastic Backwardness. This study made an observation that more than 50% of the scholastically backward children have access to television. This is in conjunction with the observation by Hancox et al [15] that television viewing has an adverse implication on School performance. It is also observed that most of the children with Specific Learning Disability are interested in cartoon and sports channel – This is in agreement with the already existing literature on SLD1 that these children have normal IQ and are not interested in vernacular language programs.

In this study 50% of the children with scholastic backwardness attend to extra schooling (Tuitions). However the results shown by Shenoy et al [1] that lack of tuitions are a risk factor for poor school performance. This can be explained that the parents of the baseline population of this study have a lower educational and income pattern – which serves as a stimulating factor for them to provide tuition for their children. Also, in this study, more children with Specific Learning Disability perform badly at school inspite of attending to additional tuitions – Remedial Education is needed for them, not tuitions. There seems to be a relationship between breakfast consumption and cognition.

Gajre and colleagues' study offers tentative evidence that breakfast eating habits are directly associated with acute cognitive functioning, as well

as achievement in school subjects such as maths and science. However is this study 90% of the children do not skip breakfast – this can be due to the lower socioeconomic background of this study population which prioritizes eating over school timing.

And it is also interesting to note that these children perform poorly at school inspite of not skipping their breakfast. It is also worth noting in this study that none of the children with specific learning disability came late to school or had poor attendance pattern. This can be due to the good IQ of these children who realize the importance of punctuality and regularity at school for good outcome.

It is observed in this study that six children have varying degrees of Hearing Impairment – four of them in mild degrees and two severe degree of Hearing Impairment. This is comparable to the 5% hearing impairment that has been reported by Bess H et al [16]. This Hearing impairment may not be the only causative factor in these children, but is definitely a contributory factor. It is observed is this study that ten children had varying degrees of Refractory eye errors. This is comparable to the 5-10 % prevalence of Visual impairment that has been reported in previous studies by Dandona R et al and Trivedi V et al [17,18]. Children with visual impairment may present with certain features such as deterioration in handwriting, slowness in copying from the board, deterioration activities dependent on eye hand coordination and asking for written instructions to be given verbally.

It was observed in this study that eighty out of the hundred children are Anemic as per the WHO Definition – This is very much higher compared to the prevalence of Anemia reported in School going children from Gulbarga as 70.9% 51 and 38% reported in a study from Urban Punjab.. It can be hypothesized that the higher prevalence of Anemia in the study population reflects that Anemia could be a contributory factor for the poor Scholastic performance as Anemia leads to Cognitive impairment.

Conclusion

All children with poor scholastic performance must be subjected for assessment of visual acuity by means of Snellen's chart and hearing by means of the pure tone audiometry

References

1. Thangodorai C et al, Symposium on Scholastic backwardness and LD, IAP TNSC – Pedicon 99.
2. Rajput BM(1985), maternal education & achievements in a major role in academic achievements.
3. Kawada T. Te effect of Noise on health of children. J Nippon Med Sch. 2004: 71: 5 -10.
4. American Academy of Pediatrics. Committee on Public Education. American Academy of Pediatrics : Children, Adolescents and Television. Pediatrics. 2001; 107: 423-426.
5. Dewan A. Environmental Epidemiological study related to aerial spray of endosulfan on cashewnut plantations in Kasargode district of North Kerala. www.cseindia.org/programme/health/pdf/conf2006 /toxins2 _dewan. pdf.
6. Cañadas F, Cardona D, Dávila E, Sánchez-Santed F. Long-Term Neurotoxicity of Chlorpyrifos: Spatial Learning Impairment on Repeated Acquisition in a Water Maze. Toxicological Sciences. 2005; 85: 944-951; doi:10.1093/toxsci/kfi143.
7. Chaudhari S, Otiv M, Chitale A, Pandit A, Hoge M. Pune low birth weight study-cognitive abilities and educational performance at twelve years. Indian Pediatr 2004; 41: 121-128.
8. Bhutta AT, Cleves MA, Casey PH, Cradock MM, Anand KJS. Cognitive and Behavioral Outcomes of School-Aged Children Who Were Born Preterm. JAMA. 2002; 288: 728-737.
9. Jongmans MJ, Smits-Engelsman BC, Schoemaker MM. Consequences of comorbidity of developmental coordination disorders and learning disabilities for severity and pattern of perceptual-motor dysfunction. J Learn Disabil. 2003; 36: 528-537.
10. Savage R, Cornish K, Manly T, Hollis C. Cognitive processes in children's reading and attention: the role of working memory, divided attention, and response inhibition. Br J Psychol. 2006; 97: 365-85.
11. Shaywitz SE, Shaywitz BA, Fletcher JM,Escobar MD. Prevalence of reading disability in boys and girls. Results of the Connecticut Longitudinal Study. JAMA. 1990; 264: 998-1002.
12. Krishna Kumar, Calicut – Effect of Individualized Education Plan on Slow Learners : Indian Journal of Pediatrics. 2006; 73(2).
13. Nair MK, Paul MK, Padmamohan J. Scholastic performance of adolescents. Indian J Pediatr. 2003; 70: 629-631.
14. Pennington BF, Smith SD. Genetic Influences on Learning Disabilities and Speech and Language Disorders. Child Development. 1983; 54: 369-387. doi:10.2307/1129698.
15. Robert J. Hancox, MD; Barry J. Milne, MSc; Richie Poulton, PhD: Association of Television Viewing During Childhood With Poor Educational Achievement: Arch Pediatr Adolesc Med. 2005; 159: 614-618.
16. Bess FH, Dodd Murphy J, Parker RA. Children with minimal Sensorineural hearing Loss: Education, performance and functional status Ear Hear. 1998: 19: 339-354.

17. Trivedi V, Zalawadiya S, Bhatt JV, Pawar T, Kupmavat B. Prevalence of refractive errors in children (age group 7-15 years) of rural and urban area of Gujarat: a population based study. Journal of Applied Basic Medical Sciences. 2006; 8: 128-135.

18. Dandona R, Dandona L, Srinivas M, Sahare P, Narsiah S, Munoz SR. Refractory error in Rural population in India. Invest Ophthalmol. 1998; 82: 1265–1271.