Scholastic backwardness among school students: Prevalence and correlates

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Abstract

Introduction: Scholastic achievement is a key factor for personal and professional growth. Scholastic Backwardness affects child's education, achievements, self esteem, employment and marriage prospects

Aim: To estimate the prevalence and identify the co-morbidities and correlates for scholastic backwardness among school children.

Materials and Methods: We conducted a cross-sectional observational study among students in the age group of 5-15 years in an urban school of Jaipur (Rajasthan). Scholastically backward students without Intellectual Disability were evaluated in detail. Child Behavior Checklist was used for co-morbidities. Scholastically backward students were compared with scholastically superior students for evaluating the correlates.

Results: A total of 637 (N) students were considered for initial assessment (350 boys and 287 girls). 73 (n) children were diagnosed with Scholastic Backwardness (11.46%, n/N). The boys were 45 (12.85%) as compared to 28 (9.75%) girls. Specific Learning Disabilities were the commonest (16/73) followed by anxiety disorders and childhood depression. Determinants such as parental illiteracy, substance use problems in father, parental separation/divorce, parents having psychiatric disorders, low school attendance, not attending tuitions, presence of neurodevelopmental and psychiatric disorders and developmental delay were significantly associated with Scholastic Backwardness (p<0.05).

Conclusion: Scholastic backwardness is common in school going children. The causes are complex and multifactorial. Combination of family/social factors, personal factors, neuro-developmental factors and school related factors are responsible. It is possible to identify high risk children using these factors and intervene early.

Keywords: Scholastic backwardness, Children, Adolescents, Risk factors, Social influence.

Introduction

Academic achievements are considered a benchmark of a child's intelligence. In today's competitive society, scholastic underachievement is a major concern among parents and teachers. Scholastic achievement assumes significance as it is a key factor for personal and professional growth in most cases.[1] Scholastic Backwardness affects child's education, achievements, self-esteem, employment and marriage prospects.[2]

An estimated 5-15% of school-going children have scholastic backwardness.[3] Scholastic backwardness (SB) is usually equated to grades obtained in the examinations.[4] Many researchers have tried to define SB. Rutter defined SB operationally in terms of poor scholastic performance reflected by overall marks below 35%.[5] A simple way of identifying SB in a child is if he or she failed regularly in all subjects or had class failure (detention) in the previous year.[1,3]

Childhood development occurs mainly in physical, emotional, social and academic domains, which are interrelated. A disturbance in any of the four areas may affect development in other areas. The determinants of SB or factors associated with SB are complex, multiple and range from neuro developmental disorders, psychological and behavioral disorders, physical illnesses, learning disorders and various social and environmental factors.[6,7] Awareness and early identification of these etiological or contributing factors can help in early and appropriate intervention. Despite a few Indian studies conducted on prevalence of SB in school children, there are no conclusive results. The studies show large variations in their results (20% to 50%).[8] The aim of the present study was to estimate the prevalence and identify the co-morbidities and correlates for scholastic backwardness among school children.

Materials and Methods

We carried out a cross-sectional observational study in an urban school of Jaipur (Rajasthan), which had approximately 1200 students. The sample of the study was selected from 5-15yrs age group children studying in the school. Written informed consent from the teachers and parents of children and assent from children included in the study was taken. Institutional ethics approval was obtained prior to sample collection.

Students in the age group of 5-15 years, regularly going to school were included for participation in the study. Teachers were also involved in the assessment. Scholastic backwardness was considered if the child failed regularly in all subjects or had class failure in the previous year. The children who scored greater than 75% in the previous year were considered scholastically superior (SS). The information was gathered from teachers, parents and annual reports of the school. The

child was also individually assessed when SB and SS was considered along with an interview with the parents. The data of SB and SS students were compared to determine the contributing factors for Scholastic Backwardness.

The exclusion criteria were children with intellectual impairment/mental retardation (diagnosed by a trained clinical psychologist using Malin's Intelligence Scale for Indian Children), progressive neurological disorders, known chronic ailments under treatment and parents unwilling for participation in the study. Children with refractory errors were included. But children with severe visual, auditory and speech impairment were excluded.

The aims of the study were explained to the subjects and assurance was given regarding confidentiality. The study was done in 2 phases. In the first phase, the children were screened for exclusion and inclusion criteria and assessed for scholastic backwardness by the investigators and the trained teachers. In the second phase, children diagnosed with SB and their parents were interviewed using a socio-demographic form and a semi structured questionnaire (attached below) to evaluate the determinants of SB. The correlates in the semi structured questionnaire were selected based on observation/clinical experience of investigators as well as from previous studies. Relevant investigations and clinical assessments were also done including ENT and eye check up. Co-morbidities in the SB children were screened using the Child Behavior Checklist (CBC) based on DSM-4 by trained psychiatrists and also through the parents/teachers interview using DSM-4 diagnostic criteria.[9]

Statistical Analysis

Statistical analysis was carried out with the help of the SPSS package. The data was collected and entered in excel format which was transferred to SPSS 17. The categorical variables were assessed using Pearson-Chi square. Means were compared using the student 't'-test. Other appropriate tests were utilized when required.

Results

A total of 814 students in the age group of 5-15 years studying in the school were considered for inclusion in the study. However, 151 parents did not consent for participation in the study and were not surveyed. Among the rest, 26 children had chronic medical and/or neurological problems which could affect cognition and study performance. Therefore, 637 (N) students were considered for initial assessment (350 boys and 287 girls).

The total number of children with SB were 85 as per the operational criteria. However, 12 of these 85 children were detected to have borderline intelligence or mild mental retardation. Hence, they were excluded from detailed interviews and final assessment. A total of 73 (n) children were diagnosed with SB (11.46%, n/N). The boys were 45 (12.85%) as compared to 28 (9.75%) girls. Similarly, the children with scholastically superior performance were 180 (x) in number (28.25%, x/N). The boys were 85 (24.28%) as compared to 95 (33.10%) girls.

We found that 32 out of 73 children diagnosed with SB had neurodevelopmental and/or psychiatric disorders (Table 1). Specific Learning Disabilities such as dyslexia, dyscalculia and dysgraphia were the commonest among SB children (16/73) followed by anxiety disorders and childhood depression.

Table 1: Pattern of Neurodevelopmental and psychiatric disorders in Scholastically Backward Children (N=73)

S. No.	Psychiatric Diagnosis	Frequency (%)
1.	Dyscalculia	8 (10.95%)
2.	Dyslexia	6 (8.21%)
3.	Dysgraphia	2 (2.73%)
4.	ADHD	2 (2.73%)
5.	Childhood Depression	4 (5.47%)
6.	Anxiety disorders	8 (10.95%)
7.	Headache	2 (2.73%)

We compared various parameters between 73 SB students and 180 SS students to evaluate the determinants of scholastic backwardness (Table 2 and Table 3). Determinants such as parental illiteracy, substance use problems in father, parental separation/divorce, parents having psychiatric disorders, low school attendance, not attending tuitions, presence of neurodevelopmental and psychiatric disorders and developmental delay were significantly associated with SB (p<0.05). Other determinants such as refractory errors, time spent on television/mobile, parents having medical disorders and socio-economic status (low/middle/higher) did not significantly affect SB.

Table 2: Determinants with significant contribution towards scholastic backwardness among school children

Determinants		Scholastic Backward (N=73)	Scholastic Superior (N=180)	Chi-square value	df	p-value
Parental illiteracy	Yes	50	76	54.433	1	0.000*
	No	23	104			
Substance use in father	Yes	53	106	4.183	1	0.040*
	No	20	74			
Parental separation/divorce	Yes	9	8	28.874	1	0.000*
	No	64	172			
Psychiatric disorder in parents	Yes	16	15	8.914	1	0.002*
	No	57	165			
Attendance at school	More than 50%	43	142	27.632	1	0.000*
	Less than 50%	30	38			
Attending Tuitions	Yes	28	101	37.940	1	0.000*
	No	45	79			
Neurodevelopmental and psychiatric disorders	Yes	32	18	31.390	1	0.000*
	No	41	162			
Developmental delay	Yes	9	7	5.923	1	0.014*
	No	66	173			

p value significant at < 0.05

Table 3: Determinants having insignificant contribution towards scholastic backwardness among school children

Determinants		Scholastic Backward (N=73)	Scholastic Superior (N=180)	Chi-square value	df	p-value
Refractory errors	Yes	30	94	2.573	1	0.108
	No	43	86			
Time spent on Television/Mobile	More than 2 hrs /day	38	99	0.181	1	0.670
	Less than 2 hrs/day	35	81			
Parents having medical disorders	Yes	10	24	0.006	1	0.938
	No	63	156			
Socio-economic status	Low	20	39	2.674	2	0.262
	Middle	32	70			
	High	21	71			

p value significant at < 0.05

Discussion

Scholastic backwardness is a universal problem which affects academic and social progress of students.[10] Therefore, it becomes imperative for caregivers, teachers, psychologists, and pediatricians to identify this condition early and take effective steps to help such students. The present study aimed at estimating the prevalence and determinants of scholastic backwardness among school students aged 5-15 years at an urban area. Amongst the sample size of 637, the prevalence of SB was 11.46% (n=73). The boys were more compared to girls (45 and 28).

The rates of scholastic backwardness have varied considerably across studies ranging from 10% to 50%. Nair et al reported 5-15% SB among adolescents.[4]

Similarly, Shenoy et al studied 5-8 year old children and reported 10.38% rates of SB.[8] A study by Shashidhar et al among adolescents found 13.5% rates of low achievers.[11] Karande et al have reported approximately 20% SB among Indian school children.[12] A recent study by Nayak et al among 12-16 year old children found approximately 25% of academic under-achievers.[13]

Possible reasons suggested for these variations in results are differences in sample size, age range of the study population (Primary school children, adolescents, pre-adolescents etc.), area of study population (rural and urban), type of school (government and private), differences in inclusion and exclusion criteria (a few studies had included children with mental

retardation)[1,14] and different criteria for screening of SB (SB defined as overall marks below 35% in previous class or if the child had failed regularly in all subjects/ had class failure in the previous year). We propose an average acceptable SB prevalence rate of 10-20% among intellectually able school students of all age groups across India.

Literature is varied and divided on the predictors of SB among school children. The study shows and reiterates that factors other than mental retardation and chronic medical illnesses are also associated with scholastic backwardness.[14,15] We found that family related factors (parental illiteracy, substance use problems in father, parental separation/divorce, parents having psychiatric disorders), personal factors (low school attendance, not attending tuitions) and developmental factors (presence of neurodevelopmental/psychiatric disorders and developmental delay) played a major role in SB, as compared to scholastically superior students.

Learning disorders and psychiatric problems have been consistently associated with SB.[1,6,8] Previous studies have demonstrated that academic achievement is significantly influenced by the parental involvement and cultural milieu of the family, similar to our study.[1,8,16-18] Factors such as parental education, substance use problems in father,[19] parental separation/divorce and parents with psychiatric disorders affect involvement and supervision of parents in the studies of the child.[4,8,20] Such children are more often absent from school and contributes to SB.[11] Broken homes/marriages, frequent fights between parents and domestic violence are common in children with SB.[8,21] A healthy family environment is essential for appropriate academic functioning.[21]

Neurodevelopmental/psychiatric disorders and developmental delay often result in subtle cognitive deficits which may not amount to visible mental retardation. However, there is a strong connection between cognitive abilities and academic achievement.[22] The Pune study by Choudhari et al in children with low birth weight (which may result in developmental delays) showed these children had significantly lower IQ and poor academic achievement,[23] which has been shown in previous studies also.[24] Our findings are consistent with these observations.

Factors such as socio-economic status, medical conditions in parents, refractory problems and time spent on television/mobile were insignificant contributors towards SB. Most of the studies have consistently demonstrated low socio-economic status to be related to SB.[1,13,16] This may be due to difference in level of teaching at different schools where sample was collected and skewed sample collection. We collected sample uniformly from the same school. It also represents the will to study and succeed among students with less opportunities, provided they are given good studying conditions. Few previous studies have found SB to be related to refractory problems.[11,13] One study did not find significant correlation with SB and refractory errors.[25] Refractory errors may represent underlying nutritional problems. However, the reasons are multifactorial and cannot be fixated at a single cause. SS students had similar rated of refractory problems which reiterates the same.

Ours is among the very few studies which included children with normal intelligence and without any significant chronic medical ailments. This helped evaluate other important reasons for SB. Good sample size, involvement of teachers and parents in assessment and strong methodology were other strengths of this study. The study was limited by lack of detailed psychological assessment due to shortage of trained psychologists and time constraints.

We can conclude that scholastic backwardness is common in school going children. The causes are complex and multifactorial. Combination of family/social factors, personal factors, neuro-developmental factors and school related factors are responsible. It is possible to identify high risk children using these factors and intervene early. This has implications for teachers and parents involvement to help in student achievement. Since, psychological disturbances play a significant role in SB, counseling for the students, teachers and parents individually can help in appropriate academic achievement.

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Semi structured proforma

Name: **I.D:**
Sex: **Residence:**
Age: **School Class:**
Scholastic Backwardness: **Yes**   **No**

Risk Factor	Yes/No	Describe
Parental illiteracy	Yes	
	No	
Parental separation/divorce	Yes	
	No	
Psychiatric disorder in parents	Yes	
	No	
Substance use in father	Yes	
	No	
Parents having medical disorders	Yes	
	No	
Attending Tuitions	Yes	
	No	
Neurodevelopmental and psychiatric disorders	Yes	
	No	
Developmental delay	Yes	
	No	
Refractory errors	Yes	
	No	
Time spent on Television/Mobile	More than 2 hrs /day	
	Less than 2 hrs/day	
Attendance at school	More than 50%	
	Less than 50%	
Socio -economic status	Low	
	Middle	
	High	

Tick yes/no for a specific risk factor. Describe in detail if required