

Risk Factors for Scholastic Backwardness in Children

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Aim: To identify the risk factors for scholastic backwardness in children.

Participants: Children in the 6-12 year age group attending regular schools and referred to the child guidance clinic for scholastic backwardness.

Setting: Tertiary care hospital in South India.

Methods: Participants were compared with an age-and sex-matched group of children with good academic performance, to ascertain risk factors for scholastic backwardness.

Results: There were 75 boys and 35 girls in the study group. Among them 30 (27%) children had mental retardation, 39 (36%)

had borderline intelligence and 12 (11%) had microcephaly. Undernutrition was noted in 36 (33%) children and 31 (28%) had stunted growth. 28 (26%) children had a history of chronic medical problems like epilepsy, bronchial asthma and congenital heart diseases. Visual, hearing and speech defects were present in 6 (6%), 5 (5%) and 12 (11%) children, respectively. Statistically significant differences were noted in the educational level and employment status of parents of children with scholastic backwardness and those with good academic performance.

Conclusion: Social and family factors have a significant influence on the academic functioning of children.

Key words: Children, Risk factors, Scholastic backwardness.

Academic underachievement of children is a big concern among parents and teachers in present day competitive society. It is reported that around 20% of school children have scholastic backwardness [1]. Factors associated with scholastic backwardness include physical illnesses, below average intelligence, learning disorders, attention deficit hyperactivity disorder, psychiatric disorders, family and school factors [1,2]. Scholastic backwardness contributes to school dropout, especially after the primary school years [3] and should be recognized and remedial measures initiated, in the primary classes itself for best results. At present, children are identified much later and as a result, optimum benefit of remedial education is not obtained. It is important to identify the risk factors for scholastic backwardness so that these children can be identified early and corrective measures initiated. The aim of the present study was to identify the risk factors for scholastic backwardness in children.

METHODS

The study was conducted at the Child Development Services of the Institute of Mental Health and Neurosciences (IMHANS) and the Child Guidance Clinic (CGC) at the Department of Paediatrics, Medical College, Calicut during the period of one year from November 2008 to October 2009.

Children in the 6-12 year age group who were referred to the CGC during the study period for scholastic backwardness and who satisfied the inclusion criteria were taken up for the study. Regular school-going children whose parents gave consent were included. Children diagnosed to have progressive neurological disorders were not included. Children with hemophilia, hemolytic anemia, leukemia and HIV infection and those with physical illnesses that could interfere with assessment were also not included.

A child was considered to have scholastic backwardness if he or she failed regularly in all subjects or had class failure (detention) in the previous year. Diagnosis of scholastic backwardness was made based on information provided by parents, teacher reports and individual evaluation. Each child and his/her parent were interviewed together and separately. Detailed clinical examination and relevant investigations were done. A report from the class teacher regarding the functioning of the child in the school including general activity in the class, relationship with students and teachers, academic functioning, play and extracurricular activities was obtained. Children were evaluated using a semi-structured proforma to elicit socio-demographic data and clinical history data. Binet- Kamath test was used for IQ assessment [4] and the psychiatric diagnoses were made based on DSMIV diagnostic criteria [5].

Children in the study group were compared with an age- and sex-matched group of children with good academic performance to ascertain risk factors for scholastic backwardness. Only those children who regularly got A grade or B grade in all subjects were considered to have good academic performance. The children with good academic achievement were selected from four schools in rural areas which included two aided and two government schools. The study was approved by the Institutional ethics committee of Governmental Medical College, Calicut.

The data were analyzed using the software SPSS for Windows (version 10.0). Chi square test and student's 't' test were used for comparison.

RESULTS

The study group consisted of 110 children with scholastic backwardness. There were 75 boys and 35 girls in the 7 to 12 year age group studying in classes from 1st standard to 7th standard, with a mean age of 9.6 years. 30 (27%) children had mental retardation. Among them 25 (23%) had mild mental retardation and 5 (5%) had moderate to severe mental retardation. 41(37%) had normal intelligence and 39 (36%) had borderline intelligence. Head circumference was normal in 84 (76%) children while 12 (11%) had microcephaly. 36 (33%) children had under-nutrition and 31 (28%) had stunted growth. 28 (26%) children had a history of chronic medical problems which included epilepsy, bronchial asthma and congenital heart disease. One child had congenital hypothyroidism. Visual, hearing and speech impairment was present in 6 (6%), 5 (5%) and 12 (11%) children, respectively.

The common psychiatric disorders noted were Attention deficit hyperactivity disorder (22;20%) and Oppositional defiant disorder in (11;10%). Non-specific behavior problems were present in 21(19%) children. 5% had motor tics and an equal number of children had stereotypic movements.

34 (31%) children were born as low birth weight babies. Antenatal, natal or post natal complications like maternal PIH, maternal gestational diabetes mellitus, birth asphyxia, neonatal seizures, jaundice or respiratory distress were present in 29 (26%) children. Developmental milestones were delayed in 48 (44%) children. Among them 20 (18 %) had global developmental delay. Isolated motor developmental delay was noted in 5 (5%) children and isolated language delay was present in 23 (21%) children.

The group of children with good academic performance included 110 children. Statistically

significant differences were noted between the educational status and employment level of parents of children with scholastic backwardness and those with good academic performance. Fathers of the majority of children with scholastic backwardness were unskilled workers. Majority of the mothers were unemployed or unskilled workers (**Table I**). Fathers of majority of children had studied up to primary or high school level. Among the mothers of children with scholastic backwardness, majority had high school education while only 10(9%) were graduates (**Table I**).

Chronic medical illnesses, perinatal problems, low birth weight, developmental delay, family history of mental illness or mental retardation and parental alcoholism were significantly more in children with scholastic backwardness (**Table II**).

When children with normal intelligence and scholastic backwardness were analyzed separately it was found that family history of mental illness (15; 37%), family history of mental retardation (11; 27%), family history of epilepsy 7 (17%), parental alcoholism 11; 27%), perinatal brain insult (8; 20%) and chronic medical problems (7; 17%) were significantly more in children with scholastic backwardness compared to children with good academic performance.

DISCUSSION

In the present study, significant differences were noted in the educational status and employment level of parents of

TABLE I EMPLOYMENT AND EDUCATION STATUS OF PARENTS

Employment status	Father		Mother	
	Case No. (%)	Control No. (%)	Case No. (%)	Control No. (%)
<i>Employment status</i>				
Un-employed	6 (5)	3 (3)	95 (86)	90 (82)
Unskilled worker	60 (55)	16 (17)	13 (12)	2 (2)
Skilled worker	19 (17)	11 (10)	1 (1)	1 (1)
Self employed	7 (6)	38 (35)	1 (1)	2 (2)
Govt. / public sector	7 (6)	23 (21)	0	13 (12)
NRI*	11 (10)	17 (16)	-	-
Professional	0	2 (2)	0	2 (2)
<i>Educational status</i>				
Primary	34 (31)	12 (11)	21 (19)	6 (6)
High school	67 (61)	60 (55)	59 (53)	44 (40)
Pre-degree	5 (5)	18 (16)	20 (18)	33 (30)
Graduate & above	4 (4)	20 (18)	10 (9)	27 (24)

*NRI: Non-resident Indian.

WHAT IS ALREADY KNOWN?

- Scholastic backwardness is a common problem among school going children.

WHAT THIS STUDY ADDS?

- Chronic medical illnesses, perinatal insult, low birth weight and delayed development are risk factors for scholastic backwardness. Family history of mental illness or mental retardation, parental alcoholism and low educational and employment status of parents are associated with scholastic backwardness in children.

children with scholastic backwardness and those without scholastic backwardness. Previous studies have found that academic achievement is significantly influenced by the socioeconomic and cultural milieu of the family and parental involvement in school activities [6-8]. Lower education status of the father and unhappy family were found to predict poor scholastic performance in adolescents in a study from Kerala [9]. School absenteeism was reported to be greater in students whose fathers were laborers or self-employed and whose mothers had lower educational levels [10]. This may contribute to lower academic performance in children. Apart from socioeconomic factors and parental education, other factors in the family environment also influence academic functioning of children. It was reported that disturbing factors at home including quarrels between parents and siblings, broken homes, substance abuse in parents and being burdened by domestic responsibilities were more in low achievers compared to high achievers [11]. A healthy family environment fosters academic achievement.

Studies have shown that quality of the diet and when meals are eaten also influences academic functioning [12-14]. In our study, chronic medical illnesses were found to be significantly more in children with scholastic backwardness. It is well established that children with chronic illnesses have poor academic functioning compared to healthy children [15-19]. The low

achievement is not simply a result of school absenteeism due to the illness, but due to the inherent aspects of the illness [17, 18]. Children with chronic illnesses and the added disadvantage of low socioeconomic status, are at particular risk for poor school achievement [16]. This emphasizes the importance of providing educational support to children with chronic illnesses.

The Pune low birth weight study found that LBW babies on follow up at the age of 6 years and 12 years have significantly lower IQ scores and poor visuo-motor perception and poor academic achievement compared to controls [20, 21]. Other studies have also reported that perinatal brain insults and low birth weight are risk factors for scholastic backwardness [22-24]. Our findings are consistent with these observations.

Learning disorder (LD) is an important cause of scholastic backwardness in children with normal intelligence [1, 2]. In the present sample, among children with normal intelligence, there were several children with features of LD. Due to the difficulty in getting a standardized tool we could not evaluate the exact percentage of children with LD in the sample. This is a limitation of the study. Another limitation is that children with scholastic backwardness were selected from children referred to the CGC for evaluation whereas children with good academic performance were selected from schools. Ideally both groups should have been hospital-based samples, but due to practical difficulties we could not get a hospital-based sample of children with good academic performance for comparison. This fact should be considered while interpreting the results.

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TABLE II RISK FACTORS FOR SCHOLASTIC BACKWARDNESS

<i>Risk factor</i>	<i>Cases (%)</i>	<i>Controls (%)</i>
Low birth weight	34 (31)	10 (9)
Perinatal insult	29 (26)	3 (3)
Delayed Development	48 (44)	6 (5)
Chronic medical illness	28 (26)	1 (1)
Family history of mental illness	36 (33)	2 (2)
Family history of mental retardation	16 (15)	2 (2)
Family history of epilepsy	20 (18)	3 (3)
Parental alcoholism	24 (22)	3 (3)

P < 0.001 for all factors.

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