RISK FACTORS FOR POOR ACADEMIC PERFORMANCE IN CHILDREN

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ABSTRACT

Background: Poor academic performance leads to school dropouts especially in early school years hence shutting the door for education for the child. If recognized early, remedial measures can be taken up in the primary classes to obtain optimum benefit. **Aim:** To identify the risk factors for not performing well in school. **Participants:** All children between 5-14 years attending regular school and referred to Paediatric OPD for poor academic performance. **Method:** Participants were compared with candidates of same age and sex with good academic performance in order to find the risk factors for poor academic performance. **Settings:** Multicentric i.e. in three tertiary Hospitals in Eastern India. **Results:** There were 150 boys and 70 girls in study group. Among them 60 (27%) had mental retardation, 78 (36%) had borderline intelligence and 24 (11%) had microcephaly. Undernutrition was present in 72(33%) and 62(28%) had stunted growth. 56 (33%) children had a history of chronic medical problems. Visual, hearing and speech defects were present in 12 (6%), 10 (5%) and 24 (11%) children respectively. Educational level and employment status of the parents had statistically significant impact on poor academic performance. **Conclusion:** Social and family factors have a significant influence on academic functioning of children.

KEYWORDS: Poor academic performance, Social and Family factors.

INTRODUCTION

In a competitive society, poor academic performance is a big challenge for parents and teachers. Poor academic performance leads to school dropouts especially in early school years hence shutting the door for education for the child.[1] If recognized early, remedial measures can be taken up in the primary classes to obtain optimum benefit. Common factors associated with poor academic performance are suboptimal intelligence, learning disorder, undernutrition, prolonged physical illness, Attention Deficit hyperactive disorder, psychiatric disorder, family and school factors.[2, 3]

AIM

The aim of the study was to identify risk factors for poor academic performance in children to initiate remedial measures early.

MATERIAL AND METHODS

The present study was conducted in the Departments of Paediatrics, SCB MCH, Cuttack, SVPPGIP, Cuttack and SLN MCH, Koraput during a period of 2 years extending from January 2016 to December 2017.

Inclusion criteria: (a) Regular school going children between 5-14 years who were referred to Paediatric OPD for poor academic performance in school and (b) Children whose parents gave consent for the study.

Exclusion Criteria: (a) Children with co-morbid conditions like hemolytic anaemia, hemophilia, HIV, leukaemia, progressive neurological diseases and those with physical illness that could interfere with assessment and (b) Children whose parents did not give consent for study.

The child was considered to have poor academic performance if he regularly failed in most of the subjects or had class detention in any earlier classes. Diagnosis was made basing on (a) the information by the parents, (b) annual academic performance reports provided by the school and (c) individual assessment along with separate questionnaire with parents and teachers. All the children were evaluated with a structured proforma. Children in the study group were compared with age and sex matched group of children from nearby three government schools who regularly secured 'A' grades. 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 psychiatric diagnoses were made based on DSM IV diagnostic criteria.[5]

The data were analysed using software SPSS-13. Chi square test and students' 't' test were used for comparison.

RESULTS
The study group consisted of 220 children with poor academic performance. There were 150boys and 70 girls in 5-14 age group studying in classes I – IX. 60 children (27%) had mental retardation. Among them 50 (23%) had mild mental retardation and 10 (5%) had moderate mental regardation. 82 (37%) had normal intelligence and 78 (36%) had borderline intelligence. Head circumference was normal in 168 (76%) children while 24 (11%) had microcephaly. 72 (33%) had undernutrition and 62 (28%) had stunted growth. 56 (26%) had history of chronic medical problems like epilepsy, bronchial asthma, congenital heart disease. Visual, hearing and speech defect were present in 12(6%), 10(5%) and 24(11%) children respectively.

Common mental disorders were ADHD in 44 (20%). 42 (19%) children had behaviour problems and 5% had tics. 68 (31%) children were born as Low birth weight. Antenatal, natal and postnatal complications like PIH, maternal gestational diabetes mellitus, birth asphyxia, jaundice, neonatal seizures were present in 58 (26%).

Delay in development were seen in 96 (44%) children. Among them global developmental delay was there in 40 (18%) and isolated motor delay in 10 (5%) and isolated language delay was there in 46 (21%) children.

The group of children with good academic performance included 220 children. There was a significant difference in educational and employment status of parents among the poor academic performance and good academic performance. Most of the mothers were unemployed or unskilled workers (Table I). Most fathers have studied upto primary or high school. Among mothers of children who were poor performance, majority had high school education and only 20 (9%) were graduates. Whereas in good academic performer group most mothers had post high school education and 24% were graduate (Table I).

Chronic medical illness, prenatal problems, LBW, developmental delay, family history of mental illness and parental alcoholism were significantly more in children with poor academic performance (Table-II).

When children from study group with normal intelligence but having poor academic performance were separately analysed it was found that family H/O mental illness (30, 37%), family history of mental retardation (22, 27%), family history of epilepsy (14, 17%), parental alcoholism (22, 27%), prenatal brain insult (16, 20%) and chronic medical problem (14, 17%) were significantly more in poor academic performance group.

Table 1: Employment and Education Status of Parents.

	Father				Mother			
Employment Status	**Case No.**	**(%)**	**Control No.**	**(%)**	**Case No.**	**(%)**	**Control No.**	**(%)**
Unemployed	12	(5%)	6	(3%)	190	(86%)	180	(82%)
Unskilled worker	120	(55%)	32	(17%)	26	(12%)	4	(2%)
Skilled worker	38	17%)	22	(20%)	2	(1%)	2	(1%)
Self employed	14	(6%)	76	(35%)	2	(1%)	4	(2%)
Govt./Public Sector	14	6%)	46	(21%)	0		26	(12%)
Professional	0		4	(2%)	0		4	(2%)
Others	22	(10%)	5	(2%)	0		0	
Educational Status :								
Primary	68	(31%)	24	(11%)	42	(19%)	12	(6%)
High School	134	(61%)	120	(55%)	118	(53%)	88	(40%)
Pre-Degree	10	(5%)	36	(16%)	40	(18%)	66	30%)
Graduation & Above	8	(4%)	40	(18%)	20	(9%)	54	(24%)

Table – II: Risk Factors for Poor Academic Performance.

RISK FACTORS	CASES	(%)	CONTROLS	(%)
LOW BIRTH WT.	68	(31%)	20	(9%)
PRENATAL INSULT.	58	(26%)	6	(3%)
DELAYED DEVELOPMENT	96	(44%)	12	(5%)
CHRONIC MEDICAL ILLNESS	56	(26%)	2	(1%)
FAMILY H/O MENTAL ILLNESS	72	(33%)	4	(2%)
FAMILY H/O MENTAL RETARDATION	32	(15%)	4	(2%)
FAMILY H/O EPILEPSY	40	(18%)	6	(3%)
PARENTAL ALCOHOLISM	48	(22%)	6	(3%)

DISCUSSION

In this study. Significant differences were noted in educational status and employment status of parents among the study and control group. Earlier studies have found that good academic achievement is significantly influenced by socioeconomic, cultural background of family as well as parental involvement in school activities.[6-8] Lower educational status of father and a unhappy family were predictors of poor academic performance.[9] Children whose mothers had lower educational levels had more number of absent days in school.[10] Other than educational status and employment status, many other disturbing factors at home include quarrels between parents and siblings substance abuse in parents, broken home etc.[11] A healthy family fosters academic achievement.

Studies have shown that quality of diet also influences academic functioning.[12-14] In our study, we found that chronic medical illness also contributed in poor academic performance.[15-19] The low achievement is not simply due to school absenteeism but due to inherent aspects of illness.[17,18] Children with chronic illness and added disadvantages of poverty are at particular risk of poor achievement.[16]

In the Pune Study on LBW it was found that LBW babies on follow up at 6 yrs and 12 yrs had significantly lower IQ scores visuomotor perception and poor academic achievers.[20, 21] Other studies also reported that prenatal brain insult and LBW are risk factors for poor academic achievement.[22-23] Our study is consistent with these observations.

LIMITATION

1. Learning disorder is an important cause of poor academic performance.[1,2] In the present study there were several children with features of learning disorder among children with normal intelligence.
   Due to difficulty getting a standardized tool we could not evaluate the exact percentage of learning disorder.
2. Another limitation was that, the study group was selected from children referred to Paed OPD whereas the control group was taken from Govt. Schools. Ideally, both should have been hospital samples. This fact should be considered while interpreting the results.

CONCLUSION

Poor academic performance, now days, is a common problem among schoolchildren. This study gives an insight to the multifactorial nature of the risk factors contributing to the poor academic performance. Chronic medical illnesses, perinatal insults, LBW, delayed development, Family H/O mental retardation, mental illness or epilepsy, parental alcoholism, low educational and employment status of parents are associated with poor academic performance.

REFERENCES

1. Kamat VV. A revision of the Binet scale for Indian children (Kanarese and Marathi speaking). Br J Edu Psychol, 1934; 4: 296-309.
2. Karande S, Kulkarni M. Poor school performance. Indian J Pediatr, 2005; 72: 961-7.
3. Mogasale VV, Patil VD, Patil NM, Mogasale V. Prevalence of specific learning disabilities among primary school children in a South Indian city. Indian J. Pediatr, 2012; 79-342-7.
4. American Psychiatric Association: Diagnostic and Statistical Mannual of Mental Disorders, 4th edn. (DSM-IV) Washington, DC; American Psychiatric Association, 1994.
5. Garcia Bacete FJ, Rosel Remirez J. Family and personal correlates of academic achievement. Psychol Rep, 2001; 88: 533-47.
6. Topor DR, Keane SP, Shelton TL, Calkins SD. Parent involvement and student academic performance: a multiple mediational analysis. J Prev Interv Community, 2010; 38: 183-97.
7. Ginsburg GS, Bronstein P. Family factors related to children's intrinsic / extrinsic motivational orientation and academic performance. Child Dev, 1993; 64: 1461-74.
8. Washi S, Cown D, Terry RD. The impact of mother's education on indicators of school performance of first through third grade primary school children living in low socioeconomic areas in Khartoum, Sudan. Ahfad J, 1993; 10: 44-55.
9. Nair MK, Paul MK, Padmamohan J. Scholastic performance of adolescents. Indian J Pediatr, 2003; 70: 629-31.
10. Saraswati S, Rao C, Hedge R. Factors affecting scholastic performances of adolescents. Indian J Pediatr, 2009; 76: 495-9.

11. Florence MD, Asbridge M, Veugelers PJ. Diet quality and academic performance. J Sch Health, 2008; 78: 209-15.

12. Gajre NS, Fernanadez S, Balakrishna N, Vazir S, Breakfast eating habit and its influence on attention concentration, immediate memory and school achievement. Indian Pediatr, 2008; 45: 824.

13. Zaini MZ, Lim CT, Low WY, Harun F. Effects of nutritional status on academic performance of Malaysian primary school children. Asia Pac J Public Health, 2005; 17: 81-7.

14. Adewuya AO, Oseni SB, Okeniyi JA. School performance of Nigerian adolescents with epilepsy. Epilepsia, 2006; 47: 415-20.

15. Flower MG, Johnson MP, Atkinson SS. School achievement and absence in children with chronic health conditions. J Pediatr, 1985; 106: 683-7.

16. Kohen DE, Asthma and school functioning. Health Rep, 2010; 21: 35-45.

17. Ogunfowora OB, Olanrewaju DM, Akenzua GI. A comparative study of academic achievement of children with sickle cell anemia and their healthy siblikngs. J. Natl Med Assoc, 2005; 97: 405-8.

18. Benn EK, Hesdorffer DC, Levy SR, Testa FM, Dimario FJ, Berg AT. Parental report of behavioral and cognitive diagnoses in childhood-onset epilepsy: A case-sibling controlled analysis. Epilepsy Behav, 2010; 18: 276-9.

19. Chaudhari S, Bhalerao MR, Chitale A, Pandit AN, Nene U. Pune low birth weight study. A six year followup. Indian Pediatr, 1999; 36: 669-76.

20. 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: 121-8.

21. van de Bor M, den Ouden L. School performance in adolescents with and without periventricular-intraventricular hemorrhage in the neonatal period. Semin Perinatol, 2004; 28: 295-303.

22. VAN DEN Oudenrijn C, Brand R, Verloove-Vanhorick SP. School performance at nine years of age in very premature and very low birth weight infants: perinatal risk factors and predictors at five years of age. Collaborative Project on Preterm and small for Gestational Age (POPS) Infants in the Netherlands. J. Pediatr, 1994; 125: 426-34.

23. Stuart A, Otterblad Olausson P. Kallen K. Apgar scores at 5 minutes after birth in relation to school performance at 16 years of age. Obstet. Gynecol, 2011; 118: 201-8.