INTERNATIONAL JOURNAL OF MEDICAL AND APPLIED SCIENCES



E-ISSN:2320-3137

RESEARCH ARTICLE

Anxiety Disorders in Learning Disabled School Children

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ABSTRACT:

Objective: To assess the prevalence of anxiety disorders, gender difference and its different subtypes in learning disabled school children and normal controls. Design: Cross sectional study Participants: After IRB clearance,200 diagnosed learning disabled students, aged 7.1 to 14.0 years and 100age and socioeconomic status matched non dyslexic siblings were enrolled as controls. Methods: All participants were administered the Spence's scale using a child self report and parent questionnaire for anxiety disorders. This self-report measure assesses specific anxiety symptoms relating to six subtypes: social phobia, separation anxiety, panic attack/agoraphobia, obsessive-compulsive disorder, generalized anxiety and physical injury fears. Results: Anxiety was seen in 27(13.5%) reading disabled students and 6(6%) non dyslexics (P < 0.010). In both groups, students had subtypes combinations diagnosis rather than a specific subtype of anxiety disorder. On logistic regression models, specific learning disability, adolescent age, male gender, upper socioeconomic class and parental history of mental health needs were significantly associated with high levels of anxiety with an OR of 1.99(0.67-5.73),4.19(1.77-9.91),1.10(0.46-2.61),26.07(2.37-285.8) and (95%CI) 11.78(3.61-38.38) respectively. Conclusions: Demographics such as adolescence, male gender, high income families, parental psychopathology are risk factors for anxiety disorders in learning disabled children. Anxious children have a better self perception of their symptoms and these are often even overlooked by parents and school teachers. Keywords : Learning disorders, anxiety, school children

INTRODUCTION

Learning disorders are complex neuro developmental disorders occurring in approximately 3-10% of the population ¹. Although the manifestations of the disorder alter throughout an individual's life time depending on the educational challenges, its effects are lifelong².Reynolds et al found that school aged learning disabled children were more anxious than their non reading disabled peers and the anxiety manifests itself as excessive worry, concentration difficulties and school avoidance³.Research indicates that adolescents with anxiety disorders have a poor self esteem, dysfunctional relationships and an increased likelihood of psychiatric disorders later in life.

Previous Indian studies have estimated a prevalence of anxiety disorders as 2%-24% in the general pediatric population ⁴there exists a paucity of data about its presence in the Indian specific learning disabled (spLD) population. Purpose of the present study was to assess the prevalence of anxiety disorders, gender difference and its different subtypes in learning disabled school children and non learning disabled peers.



METHODS:

This study was undertaken by the Department of Pediatrics, Lokmanya Tilak Municipal Medical College and General Hospital, Mumbai, India (January 2013 to May 2014) after obtaining clearance from the Institute Ethics Committee at LTMMC and General Hospital.

We identified 200 SpLD children by screening of clinical records, academic history, normal vision-hearing tests, detailed psychoeducational battery, and normal intelligence in students referred to the pediatric neurodevelopmental centre for low academic performance. We also identified 100 controls; they were non-affected siblings of SpLD children.

Informed consent from parents and assent from participants were taken.

We recorded the following parameters: 1) demographic data (age, gender, socio-economic status according to Kuppuswamy Scale); 2) Academic History; 3) Clinical History Baseline demographic data was recorded.Details of Kuppuswami'ssocioeconomic status, presence of early mid or late insomnia, affected work and hobbies, weight loss, suicidal ideations within last 6 months were recorded. Academic concerns in parent, siblings and presence of parental history of medications for mental health needs were also noted.

We assessed anxiety the Spence's Children Anxiety Scale(Spence, 1998) ⁵. This self-report measure of anxiety symptoms consists of 44 items, 38 of which assess specific anxiety symptoms relating to six sub-scales, namely social phobia, separation anxiety, panic attack/agoraphobia, obsessive-compulsive disorder, generalized anxiety and physical injury fears. The remaining six items serve as positive "filler items" in an effort to reduce negative response bias. Each question had four options which were scored on a scale of 0–3, with 3 representing the highest levels of anxiety. A total SCAS score is obtained by summing scores of the 38 anxiety symptom items, this yielded a maximum possible score of 114.A*T*-score >/= 60 is used as an indicator of elevated anxiety symptoms.

We calculated the means and standard deviations for continuous variables, and proportions for categorical variables. The means were compared using the t-test and the proprortions were compared using the chi square test or Fisher's exact test for low expected cell counts. We used logistic regression models for multivariate analysis. The outcome variable for the multivariate model was 'Anxiety' as classified by SCAS-Child Rating. The primary explanatory variable in the model was SpLD children/controls. The other variables included in the model were: age, gender, socio-economic status, and parental history of treatment for psychiatric disorders. We initially built unadjusted models and later adjusted all the variables in the same model. All the analysis were done using Stata Version 13 (StataCorp, College Station, Texas, USA).

RESULTS

The mean (standard deviation) age of the SpLD children was 11.9 (1.6) years and the controls were 11.2 (1.2) years. About 70% of the SpLD children were from Secondary School Certification board, 19% were from CBSE , and 12% were from ICSE board. About 74% of controls (non-SpLD children) were from SSC board, 13% were from CBSE board, and 13% were from ICSE board. A significantly higher proportion of SpLD children reported that their academic and extracurricular activities were reduced compared with non-SpLD children (6% vs 0%, p<0.01). A significantly higher proportion of SpLD children reported anxiety according to the SCAS-Child rating compared with non-SpLD children (14% vs 6%, p=0.05). Additional demographic data are presented in Table 1.



A significantly higher proportion of SpLD children reported anxiety according to the SCAS-Child rating compared with non-SpLD children (14% vs 6%, p=0.05). However, only 8% of SpLD children and 4% of non-SpLD children were classified as having anxiety by the SCAS-Parent rating (p=0.24). About 70% of the SpLD anxiety cases had separation anxiety, 60% had social phobia, 48% had physical injury fear, and 7% reported generalised anxiety disorder. About 50% of the non-SpLD anxiety cases had separation anxiety, 40% had social phobia, 10% had physical injury fear, and none reported generalised anxiety disorder.

Even though the odds of having anxiety was higher in SpLD children compared with non-SpLD children, the association was not statistically significant (Odds Ration [OR]: 1.97, 95% Confidence Intervals [CI]: 0.67, 5.74). We also found that children in the age group of 12-14 years were significantly more likely to have anxiety compared with those in the age group 8-11 years (OR: 4.19, 95% CI: 1.77, 9.92). In general, children in the upper and upper middle socio-economic statuswere more likely to have anxiety compared with those belonging to lower middle income group. Children whose parents were on therapy for mental health issues were more likely to have anxiety compared with those parents were not on therapy (OR: 11.78, 95% CI: 3.62, 38.38). We have presented unadjusted and adjusted estimates in Table 2.

DISCUSSION

In the present study the prevalence of anxiety disorders in school children with learning disability was 13.5%⁶. In non disabled students, representing the general population 6% had elevated anxiety symptoms in clinic based settings⁷.Learning disabled males were more likely to have an anxiety disorder than non disabled controls⁸. Anxiety disorders was pervasive across all socioeconomic strata (SES) especially the upper and middle income families. Dyslexics were significantly less involved in class room and hobby activities either due to high anxiety levels or presence of learning disability in this population.The Spence questionnaires were rated by both children and parents independently and assisted when required. Children selfrated their anxiety symptoms more accurately than their parents in both cases and controls, as anxiety levels were mild and didn't significantly impact parent or peer relationships they were under reported by the parent raters.

Limitations to the interpretation of results were presence of confounding variables. In order to control for confounding measures the cases and controls were age, gender, socioeconomic strata stratified. In the present study, puberty increased the susceptibility to anxiety disorder, adolescents being more prone with an OR of 4.19(95%CI 1.77-9.91).⁹The prevalence of anxiety had a gender disparity, males being more anxious with an OR of 1.10 (0.46-2.61), although the result was not statistically significant. Anxiety levels increased with higher family incomes and sp LD students of lower SES reported lower levels of anxiety (OR – 5.39, p value 0.146) than those of upper middle SES andupper SES with an OR of13.74 (95%CI 1.36 -135.3) and an OR of 26.07(95%CI 2.37 -285.8) respectively¹⁰. Evidence exists that associated parental psychopathology leads to impaired family dynamics and increases the risk of mental health illnesses in offsprings¹¹. In ourstudy, students with a parental history of medications for mental health needs were more likely to have anxiety with an OR of 11.783(95%CI 3.61-38.38) and this result was statistically significant¹²(P 0.000).

INTERNATIONAL JOURNAL OF MEDICAL AND APPLIED SCIENCES



Earthjournals Publisher

E-ISSN:2320-3137

TABLE 1COMPARISON OF DEMOGRAPHICS, ANXIETY SCALES BETWEENLEARNING DISABLED AND HEALTHY CONTROLS (N=300)

Characteristic		With SpLD	Controls	P value
		(n=200)	(n=100)	
Age		11.9 (1.6)	11.2 (1.2)	< 0.001
mean (standard deviation)				
Gender	Female	80 (40%)	54 (54%)	0.02
n (%)	Male	120(60%)	46(46%)	
Socio-economic status	Lower	29 (15)	3 (3)	0.001
n (%)	middle			
	Middle	89 (45)	64 (64)	
	Upper	57 (29)	26 (26)	
	Middle			
	Upper	25 (13)	7 (7)	
Type of education	SSC	139 (70)	74 (74)	0.48
board*	CBSE	37 (19)	13 (13)	
n (%)	ICSE	24 (12)	13 (13)	
Deterioration of school		12(6%)	0(0%)	0.01
and extracurricular				
activitiesn (%)				
Anxiety (child reported)		27(14%)	6(6%)	0.05
n (%)				
Anxiety (parent		15(8%)	4(4 %)	0.24
reported) n (%)				

*SSC= State Board of SecondaryEducation

CBSE=Central Board of Secondary Education

ICSE=IndianCertificate for Secondary Education

Table 2: Table showing unadjusted and adjusted estimates of factors associated with anxiety (as reported by children) in our population, Mumbai, India (2013-14)

	Unadjusted estimates	Adjusted estimates	
	Odds ratio	Odds ratio	
	(95% Confidence Intervals)	(95% Confidence Intervals)	
Children with SpLD	2.45 (0.97, 6.13)	1.97 (0.67, 5.74)	
Controls	Reference	Reference	
Age (years)			
12-14	3.23 (1.54, 6.76)**	4.19 (1.77, 9.92)**	
8-11	Reference	Reference	
Gender			
Male	1.25 (0.61, 2.67)	1.10 (0.47, 2.61)	
Female	Reference	Reference	
Socio-economic Status			
Upper	10.33 (1.21, 88.36)*	26.07 (2.38, >100)**	
Upper Middle	5.75 (0.72, 45.96)	13.74 (1.40, >100)*	
Middle	2.40 (0.30, 19.29)	5.39 (0.56, 52.40)	
Lower Middle	Reference	Reference	
History of medications in parents			
for psychiatric disorders			
Yes	8.22 (2.98, 22.72)	11.78 (3.62, 38.38)***	
No	Reference	Reference	

* $p \le 0.05$; ** $p \le 0.01$; *** $p \le 0.001$



We conclude that male, adolescent, learning disabled children are at a higher risk for anxiety disorders than the general population. Demographics such as high income families and parental psychopathologypose an increased risk of anxiety disorders in children. Internalizing symptomatology is often missed by teachers and parents and child's perception for anxiety is more accurate.

WHAT THIS STUDY ADDS?

Adolescent, learning disabled children are at a higher risk for anxiety disorders than the general population

Upper socioeconomic class and co existent parental psychopathology significantly increase risk of anxiety in these children

REFERENCES

1.Willcutt EG, Pennington BF. Psychiatric comorbidity in children and adolescents with reading disability. J Child PsycholPsychiat.2000; 41: 1039 – 1048.

2.CarrollJM, Iles JE.An assessment of anxiety levels in dyslexic students in higher education. British J Edu Psychol.2006; 76: 651–662.

3. Paget KD, Reynolds CR. Dimensions, levels and reliabilities on the revised children's manifest anxiety scale with learning disabled children. J Learning Disabilities.1984; 17:137-141.

4.Bakhla AK, Sinha P, Sharan R, Binay Y, Verma V, Chaudhury S. Anxiety in school students: role of parenting and gender. Ind Psychiatry J. 2013; 22:131-137.

5.Spence SH.Ameasure of anxiety symptoms among children.Behav Res Ther.1998; 36:545-66.

6.Alesi M, Rappo G, Pepi A. Depression, anxiety at school and self esteem in children with learning disabilities. J PsycholAbnorm Children.2014; 3:125.

7.Costello EJ, Mustillo S, Erkanli A, Keeler G, AngoldA.Prevalence and development of psychiatric disorders in childhood and adolescence. Arch Gen Psychiatry.2003;60:837-44.

8. Deb S,ChatterjeeP,Walsh K. Anxiety among high school students in India: comparisons across gender,school type,social strata and perceptions of quality of time with parents. Aust J Educ Dev Psychol.2010;10:18-31.

9.Sadock BJ, Sadock VA, Pedro Ruiz MD.Kaplan and Sadock's Synopsis of Psychiatry (Ed).Behavioral Sciences/Clinical Psychiatry: 11thedn. Churchill Livingstone, 2014: 1253

10.Bae D, Wickrama KAS. Family socioeconomic strata and achievement among Korean adolescents .The Journal of early adolescence,2014

11. Biel MG, Klein RG, Mannuzza S, Roizen ER, Truong N L, Roberson-Nay R. Does major depressive disorder in parents predict specific fears and phobias in offspring? Depression and Anxiety.2008;25:379–382.

12. Choudhary MD, Jain A. A case control study on specific learning disorders in school going children in Bikaner city. Indian J Pediatr. 2012;79:1477-1481.