



## A WAKE UP CALL: RISING INCIDENCES OF ANXIETY DISORDER IN PAEDIATRIC POPULATION

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### ABSTRACT

Globally research literature on the epidemiology of childhood anxiety disorders is limited. As, many a-times anxiety disorder may not present clear cut disease like entities and may keep changing over time. Despite with these issues, incidence studies provide the possibility of assessing risk factors and help in conceptualising the progression of diseases and also guide for future endeavours of early manifestations, primary prevention, and comprehensive intervention. Present incidence study was conducted by survey method which was designed to check the incidence and severity of anxiety disorder in Indian childhood and adolescent population. For this, Devereux Scales of Mental Disorders (DSMD) was adopted for survey and as diagnostic and assessment criteria. Survey data was collected by simple random sampling method. The results were indeed a wake-up call for paediatricians, parents, school authorities and policy makers of public health services.

**KEY WORDS:** Anxiety disorder, survey study, DSMD, simple random sampling.



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## INTRODUCTION

For many years fears and anxiety in children were not considered as a problem. As a consequence, parents often were advised by medical and mental health professionals not to worry because children would outgrow from their fears. In fact, many children do overcome some fears with time but every child outgrows or overcomes fear responses and in a number of instances, these fears are not minor matters. Rather, they are manifestations of serious and often chronic conditions. When fears are part of a serious condition, they sometimes create unreasonable emotional distress and/or resulting functional limitations, such as academic or social impairment. When reaching the level where they interfere with social, emotional, and academic development, fears and anxiety often are more appropriately termed anxiety disorders. According to DSM-IV, Anxiety is defined as<sup>1</sup> – “The apprehensive anticipation of future danger or misfortune accompanied by a feeling of disphoria or somatic symptoms of tension. The focus of anticipated danger may be internal or external.” This anticipatory fear, when become uncontrolled, anxiety disorder tends to exist and once acquired consequently become chronic in nature. Anxiety disorders are quite common among children and adolescents world-wide with prevalence rates of 11.96%. Moreover rates increase with age and disorders are more commonly reported among females than males.<sup>2</sup> The present survey study was planned with an aim to provide an update of anxiety disorders of children regarding prevalence, and severity of the disease in general school population. On clinical side, this data can be used to decide the prognosis, management and to plan prevention policy of the disorder.

### AIMS & OBJECTIVES

1. To check the prevalence of anxiety disorders in general children and adolescent.
2. To check the severity of anxiety disorder in general childhood and adolescent population

### DIAGNOSTIC CRITERIA

#### I. Eligibility Criteria

- If children and adolescent meet all the inclusion criteria and exhibited none of the exclusion criteria adopted for the study.

#### II. Inclusion Criteria

- School children with age group 5-12 years and adolescent between 13-18 years.
- Children showing anxiety problems as per DSMD psychometric scales.
- Inclusion of schools for survey, which provides regular education for general population.
- Participation of teachers who have got the opportunity to observe child or adolescent for at least 4 weeks consistently.

#### III. Exclusion Criteria

- Child of age group below 5 years and above 18 years.
- Teacher who hardly observes children less than 4 weeks.
- Schools (for survey) which are providing special education for mentally retarded or subnormal children.

#### IV. Discontinuation Criteria

- Children or adolescents whose record forms were incompletely or inaccurately filled.

#### V. Assessment and Diagnostic criteria

- Devereux Scales of Mental Disorders (DSMD) for assessment and diagnosis of child behavioral disorders (Publishing authority: Devereux foundation, The psychological Corporation, USA).

### SURVEY METHODOLOGY

In present study, the prime objective of survey was to identify children and adolescent who have exhibited behaviors associated with anxiety disorders in general population. The scope of the present study was to simply identify the status of Anxiety disorders in general, not its various types. A well specific survey methodology was adopted to conduct this study efficiently and accurately.

### **Selection of population**

- **Sampling design** – The data collection procedure was ensured by the survey method through “simple random selection” irrespective of specific gender, geographic region, race, economic status and community.
- **Source** – Children and adolescent for the present study were screened out in general population from various public schools, private schools and private coaching classes, situated at Rajasthan and Maharashtra states of India. All these institutions were providing regular education for a generation of norms.
- **Age group** – Children and adolescent between 5-18 years were considered for the study.
- **Number of cases** – Total 1100 DSMD record forms of teacher ratings were distributed to various schools (who have given consent to participate in the study) out of which only 780 record forms were received back. After thorough scrutiny, total 622 cases were selected for the study and the rest 158 cases were discontinued due to incompletely filled record forms.

### **Grouping of cases**

After randomly screened out population the total scrutinized population was distributed into two major groups according to age and into their sub-groups according to gender.

- **DSMD – A:** Randomly selected cases of age group 5-12 years were included in DSMD-A group consisting sub groups as per gender.
  - ✓ **Male:** This subgroup consists of 5-12 years aged boys.
  - ✓ **Female:** This subgroup consists of 5-12 years old girls.
- **DSMD – B:** In this group, adolescent population of 13-18 years age group was included and categorized into two sub groups as per gender.
  - ✓ **Male:** Adolescent boys having age 13-18 years were included in this category.
  - ✓ **Female:** Adolescent girls having age 13-18 years were included in this category.

### **Selection of Rater**

- DSMD record forms were completed by the teachers who got a sufficient opportunity (more than weeks) to observe the child and youth.
- Teacher raters had to complete the form on the basis of their observations of child or youth and avoid making inferences about what the child or adolescent might have done.
- To avoid selection bias, teachers were instructed to rate the behaviors of first 10 students from each class-roster.

### **SURVEY MATERIALS**

For the present study, “Devereux scales of Mental Disorders” (DSMD) was adopted as behavior rating scales as well as diagnostic and assessment criteria. The following DSMD materials were used for survey purpose, scoring and interpretation of data.

#### **I. DSMD Record form**

- There was a record form for each age group as DSMD –A for ages 5-12 and DSMD-B for ages 13-18
- Child record form (DSMD-A) consists total 111 items and adolescent record form (DSMD-B) includes total 110 items.
- Next to each item, there are boxes corresponding to the ratings such as *Never, Rarely, Occasionally, Frequently* and *Very frequently* having scorings from 0 to 4 respectively.
- Record forms were translated in Hindi and Marathi languages (other than English) for easy perception of items.

#### **II. DSMD – Score Sheet**

- DSMD score sheet used to note the points obtained from each item as per their frequency in record form to decide total score.

#### **III. DSMD Manual**

- The DSMD Manual is intended to provide a full spectrum of possible interpretative aids of survey study.
- It includes the ‘Appendix-A’ which is used to determine whether a score is classified as *Average, Borderline, Elevated or Very elevated*.
- By means of this, DSMD is used to recognize the important interpretive

issues related to accurate diagnosis and treatment planning.

## RESULTS

As shown in table no.1, on age & gender-wise analysis, childhood male population (DSMD-A) showed 14.97% incidences of

anxiety disorder while adolescent male (DSMD-B) showed higher incidences i.e. 19%. However, 16.35% and much higher i.e. 22.60% incidences were recorded in childhood and adolescent females respectively. Irrespective of age, female population exhibited higher incidences (i.e.19.47%) than male population i.e.16.98%.

**Table 1**  
**Showing the incidences of anxiety disorders.**

Name of Group	Male (n=317) [A=167,B=150]		Female (n=305) [A=159,B=146]		Total population(n=622)	
	Affected cases	Incidence (%)	Affected cases	Incidence (%)	Affected cases	Incidence (%)
DSMD-A (n=326)	25	14.97	26	16.35	51	15.66
DSMD-B(n=296)	27	19.00	33	22.60	60	20.8
DSMD Total scale(n=622)	52	16.98	59	19.47	111	18.23

Also, irrespective of gender, adolescent population showed higher incidences (i.e. 20.8%) than childhood population i.e. 15.66%. All and all, total 18.23% population have discerned symptoms of anxiety disorders.

**Table 2**  
**Showing the severity incidences of anxiety disorders.**

Severity	DSMD-A		DSMD-B		Total (n=110)
	Male (n=25)	Female (n=26)	Male (n=27)	Female (n=32)	
Borderline	56.00	53.85	37.03	21.87	40.91
Elevated	40.00	34.61	37.03	43.75	39.09
Very elevated	04.00	11.54	25.92	34.37	20.00

As shown in above table, almost equal severity incidences (i.e.40.91% & 39.09%) were observed in borderline and elevated range of symptomatology in total population respectively while least severity incidences i.e. 20.% were noted in very elevated category of symptomatology. On age & gender-wise analysis, the majority of childhood male population i.e.56% showed borderline severity of symptoms followed by 40% population with elevated and very least i.e. 4% population with very elevated severity of symptomatology. Similar trend of severity incidences were replicated in childhood female population e.g. majority of population i.e. 53.85% showed borderline severity followed by 34.61% with elevated severity and least i.e. 11.54% with very elevated severity of symptomatology. However, in adolescent male population equal proportion of population i.e. 37.03% each

showed borderline and elevated severity incidences followed by 25.92% with very elevated severity of symptoms of anxiety disorder. On the contrary, adolescent female have exhibited majority of severity incidences (i.e.43.75%) in elevated category followed by 34.37% with very elevated severity of symptomatology. Least adolescent female population i.e. 21.87% have symptoms in borderline severity range as shown in table no. 2.

## DISCUSSION

Anxiety disorders can be noted as commonest behavior disorder among children and adolescent. Generalized anxiety disorder, Specific phobia, Special phobia, Panic disorder, PTSD etc. are combine, or

individually termed as anxiety disorders. In this study 18.23% population of 5-18 years, reported anxiety disorder (Table no.1) which was similar to incidences (3% to 13%) observed in another epidemiological study.<sup>3</sup> Both these prevalence records showed the high incidences of anxiety disorders and their persistent rise in present life style. Again, the prevalence of anxiety disorder in 5-12 years paediatric population was noted high i.e. 15.66% (Table no.1) which was supported by another epidemiological study conducted by Manchanda & Manchanda<sup>4</sup> (1978) where 16.3% population up to 12 years showed problems related with anxiety disorder. Also in older paediatric population (adolescent 13-18 years), somewhat higher prevalence rate i.e. 20.8% were reported in current study (Table no.1) which was somewhere replicated (i.e. 25.1%) in another incidence study conducted in U.S's adolescent population (2011).<sup>5</sup> Unlike to these figures, exceptionally raised prevalence were observed in study published in British Journal of Psychiatry<sup>6</sup> (2008) where 54.1% Indian adolescents, reported anxiety problem. Such a wide range of prevalence may be the results of variation in diagnostic criteria adopted for the study.

Specific gender-wise incidences of anxiety disorders were also analysed in current study. In general male population, 16.18% cases have anxiety symptoms (Table no.1) which varied with study conducted by Kashni (1989) where 13.3% incidence of anxiety disorders were estimated<sup>7</sup>. Also in particular to childhood male population relatively lower prevalence i.e. 14.97% were reported (Table no.1). Unlike to childhood male, 19% of adolescent male showed anxiety symptoms in current study, (Table no.1) which was supported by recent world figures where 20.3% adolescent males of U.S. have anxiety related symptoms<sup>5</sup>. Similarly, another Indian study conducted by NIMHANS Bangalore,(2010) recorded 24.4% college going adolescent males (approximately of age 19.3 years) with anxiety related symptoms and 19% with anxiety disorder.<sup>8</sup> All these figures emphasize to conclude that the incidences of anxiety disorders are raising by every passing decade and prevalence is always higher in adolescent than childhood. In line with this,

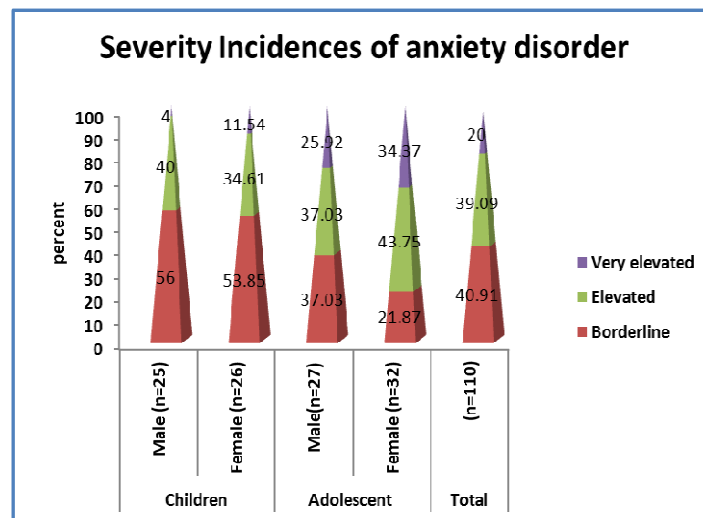
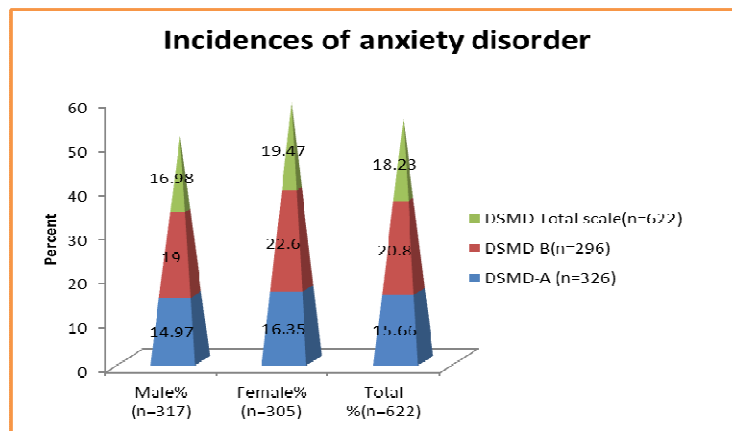
female population in current study as well as global epidemiological studies, showed relatively raised prevalence rate than male. In this study, 16.35% girls of 5-12 years age group (Table no.1) and 22.60% girls between 13-18 age group, showed symptoms of anxiety disorders. Such higher incidences in adolescent girls were also reported in U.S. population (i.e. 30.1%) by Merikangas and his colleagues<sup>5</sup>(2011). Also in overall female population, 19.47% cases have anxiety disorders (Table no.1) which was low in comparison with another world figure where 28.6% female population have anxiety disorder.<sup>7</sup> Thus, on discussing incidences of anxiety disorder, adolescent group have more prevalence rate than children, which can be explained by the possible fact that the adolescent may experience more rapid transitions accompanied with several potential stressful events in their personal, social and academic spheres which eventually resulted into state of anxiety. This is well supported with the study conducted in German adolescent by Essau C.A.(2000) who claims the prevalence rates of anxiety disorders increased with an increase in age.<sup>2</sup> Similar to current study, several global studies provided higher incidences in females than males. This disparity may account as a result of certain biological factors, hormonal factors as well as differences in experiences during childhood and adolescent<sup>9</sup> (on the basis of report from Harvard Medical School, 2006)

In this study, anxiety disorder was recorded as the most prevalent behavior disorder among children and adolescent. In male population, younger group (5-12 years) showed 14.97% prevalence of anxiety disorder (Table no.1) where major proportion (i.e. 56%) exhibited borderline feature followed by 40% population having elevated features and least proportion i.e. 4% demonstrate very elevated severity features (Table no.2). However, in higher age group (13-18years), total prevalence rate of anxiety disorder was found 19% (Table no.1) out of which borderline category and elevated category both shares equal proportion of severity incidences i.e. 37.03% and remaining 25.92% population displayed very elevated severity range (Table no.2). These results may

indicative of the fact that anxiety disorders are not only more prevalent in adolescent age group but also present in significant psychopathological state of severity.

Also, as far as anxiety in female is concerned, it was always higher in current research. As, 22.60% (Table no.1) female adolescent population estimated the diagnosis of anxiety disorder in which maximum i.e. 43.75% displayed elevated symptomatology followed by 34.37% having very elevated symptomatology and only 21.87% exhibited borderline symptoms of the disorder (Table no.2). Childhood female population reported 16.35% prevalence of anxiety disorders (Table no.1), out of which maximum 53.85% displayed borderline features of anxiety disorder, 34.61% displayed elevated features and 11.54% displayed very elevated symptomatology of the disorder (Table no.2). This again offers the evidences of high prevalence with significant severity in

adolescent age group of both gender but still female adolescents relatively showed higher prevalence and more significant severity than male adolescent which again establishes the fact that the distinct biological make up of female gender can be one of the important risk factors for anxiety disorder. All and all, anxiety disorders were found with 15.23% prevalence rate (Table no.1) in general population which shares 40.90% severity to borderline category, 30.09% severity to elevated category and 20.00% severity to very elevated category (Table no.2). These incidences, indeed, reflects that the actual anxiety disorders were found among 50.09% of total affected population of anxiety disorder and remaining borderline cases only showed difficult behavior problems related to anxiety which can be treated by few behavioral modification techniques and educational plans.



## CONCLUSION

- ✓ Anxiety disorders of children and adolescents are not indeed uncommon in Indian population. In general, approximately 'one fifth' of school-going population has been rated with anxiety disorders or combination of behavioral problems associated with anxiety disorders.
- ✓ Age of onset and persistence of behavioral disorders are distinct across different ages and among both genders. Overall, female have slightly higher incidences than male and adolescents have slightly more incidence than children.
- ✓ Moreover, majority of population have symptoms of anxiety disorder in borderline severity-range which represents to non-clinical sample and can be managed with simple behavioral modification plans and improved educational policies. However, relatively small portion of population displays elevated and very elevated severity of symptomatology which may warrant specific intervention strategies to cure.
- ✓ On the whole, current research provides the rich body of information on the incidence, and severity of anxiety disorders which can be useful in diagnosis, prognosis and developing treatment strategies for Indian pediatric population of anxiety disorders.

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