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Research Article

### PATTERN OF PSYCHIATRIC CO-MORBIDITY IN CHILDREN, AN EPIDEMIOLOGICAL STUDY, AT SIR C. J. INSTITUTE OF PSYCHIATRY, HYDERABAD.

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**Abstract:**

**Background:** According to the World Health Organization (WHO), now a day's mental health disorders are the leading causes of disability worldwide. Most of the psychiatric disorders start in child hood and adolescent. In general population 9.3% of the children had mental health problem and presence of comorbidity complicate the diagnosis and treatment.

**Objective:** This study was aimed to determine the frequency of psychiatric co-morbidity in children and to identify the common Socio demographic factors associated with presence of psychiatric Co-morbidity.

**Design:** A Cross Sectional Study

**Place and duration of study:** Study was conducted at the Psychiatric out-patient ambulatory care facilities of Sir Cowasji Jahangir Institute of Psychiatry (CJIP) Hyderabad. The study is of 06 months duration (1st January 2016 to 31st June 2016).

**Subjects and Methods:** We calculated a minimum sample size of 340. Non-probability consecutive sampling was done. All Cases of Child Psychiatry up to age 6years to 12years were included.

**Results:** From 340 children majority were male (2.5:1 Male Female ratio), mean age 9.39 years, mean duration of illness 4.21 years (s.d= 2.02). Most common disorder were mental retardation n=101 (29.7%), ADHD n=96 (28.2%), Epilepsy n=53 (15.3%), Depression n=41 (12.1%), Conduct disorder n=21 (6.2%) other disorders occurring in <5%. majority of the children 39.41% (n=134 out of n=340 children) had at least one co-morbid psychiatric disorder (p-value 0.001) and 6.76% (n=23 out of 340) had second co-morbid psychiatric disorder.

**Conclusion:** Most common child psychiatric disorder were mental retardation, followed by ADHD, Epilepsy, depression, conduct disorder and other disorders occurs in <5%. Meanwhile Mental retardation is most commonly comorbid disorder followed by conduct disorder, epilepsy and OCD and majority of the children had at least one comorbids disorder.

**Key words:** Psychiatric Disorder, Co-Morbidity, Children.

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**INTRODUCTION:**

In general population of children 9.3% children had psychiatric disorder [1] and presence of comorbidity complicate the diagnosis and treatment [2]. According to the World Health Organization (WHO), now a day's mental health disorders are the leading causes of disability worldwide [3]. Both retrospective and prospective research database had shown that most adulthood mental disorders begin in childhood [4]. In literature mostly Co-morbid studies were on ADHD, Children with ADHD more likely to have other mental health disorders, most children had at least 1 co-morbid disorder, 33% had 1, 16% had 2, and 18% had 3 or more, the risk for having 3 or more co-morbidities was 3.8 times higher for poor versus affluent children (30% VS 8%) [5]. In a cohort study of Autism Spectrum Disorder, seventy (70%) percent of participants had at least one co-morbid disorder and 41% had two or more, the most common diagnoses were social anxiety disorder (29.2%, 95% confidence interval CI 13.2-45.1), attention-deficit hyperactivity disorder (28.2%, 95% CI 13.3-43.0), and oppositional defiant disorder (28.1 %, 95% CI 13.9-42.2) [6]. In west 60% of youths with substance use, abuse, or dependence had at least one co-morbid diagnosis [7]. US adolescents, with approximately 40% of participants with one class of disorder also meeting criteria for another class of life time disorder [8]. In western Australian mainstream school students 54% of participants had two or more disorders, Co-morbidity must be considered in mind when we design a study on disorder in children and adolescents [9].

The presence of co-morbid illness is a significant clinical subject as it complicates the diagnosis, treatment and prognosis therefore, it is important to identify and treat any co-morbid psychiatric conditions in children [10]. Co-morbid disorders have a poorer outcome as evidenced by significantly greater social, emotional, and psychological difficulties [11]. Medline and Pakmedinet search showed no published studies on Child and Adolescent Co-morbidity from Pakistan, except from Aga Khan University Co-morbidity with ADHD on Clinical notes of 166 patients presenting to child psychiatric clinic One third of the sample had co-morbid psychiatric illnesses [12]. In civil hospital Karachi mental health morbidity were assessed, psychiatric disorder were frequent in males 126(63%) compared to females 74(37%) [13].

There are 20.39 million children in school, more boys than girls, with only two registered child psychiatrist for whole population, there are no specialized in-patient child psychiatric unit [14]. Therefore this study aims to determine patterns of psychiatric co-morbidity in child psychiatric disorders presenting at CJIP. This study would help to understand psychiatric co-morbidity pattern in children and would initiate further research on this topic.

**Subject and methods**

A Cross Sectional Study was conducted at the Psychiatric out-patient department of Sir Cowasji Jahangir Institute of Psychiatry (CJIP) Hyderabad. The study was 06 months duration (1st January 2016 to 31st June 2016). Sample size was calculated using WHO sample size calculator by taking 33% co-morbidity prevalence of psychiatric disorders among children presenting at clinics with a level of significance of 5% and a precision (d) of 5% [6]. We calculated a minimum sample size of 340. Non-probability consecutive sampling was done. During sample selection we define inclusion and exclusion criteria. In inclusion criteria Children of age (6-12 years), attending Psychiatry OPD at CJIP was included in the study. In exclusion criteria cases with Adverse General Medical Conditions, Cases with Head Injury, Cases who deny/withdraw consent. Written informed consent also obtained from eligible participants. All Cases of Child Psychiatry up to age 6years to 12years was included. Data was collected on semi structured proforma by collecting the relevant information from the study participants/parents. Prior to recruitment the study participant's informed consent was taken from their parents. Each of the study participants' was allocated with an ID (identification number). It was made explicit that non-participation would not result in any loss of benefit. Data was collected from the child in a manner with minimal discomfort and in privacy. Data Collection Tools was CHQ (child health questionnaire) [15] DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders) [16].

**RESULT:**

Of the 340 children included, 245 were male and 95 were female (2.5:1 Male Female ratio), 35.3% of cases fall in 12 years of with a mean age of children 9.39 years. Most of the cases were reported first after

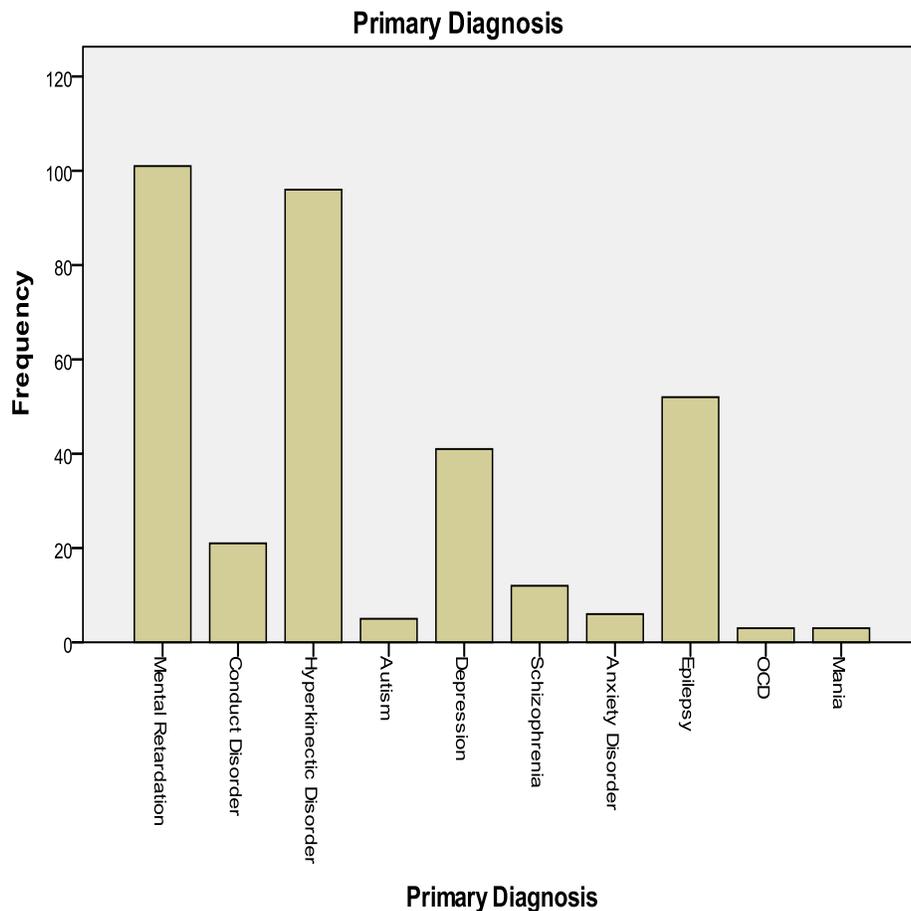
5 years of illness mean duration of illness 4.21 years (s.d= 2.02).Majority of the patients attended schooling 174 (51.2%) and belong from urban area of residence 198 (58.2%). Demographic details are in Table No.1

From 340 children, most common and top five disorder were mental retardation 101 (29.7%), ADHD 96 (28.2%), Epilepsy 53 (15.3%), Depression 41 (12.1%), Conduct disorder 21 (6.2%) other disorders occurring in <5% of the children in sample (Figure no 1).

### PREVALENCE OF DISORDERS

**Table 1: Demographic details**

<b>SOCIODEMOGRAPHIC FACTORES</b>	<b>FREQUENCY</b>	<b>PERCENT</b>
<b>Mean Age in years</b>	9.39 years (s.d.=2.36)	
<b>Gender of patient</b>		
<b>Male</b>	245	72.1
<b>Female</b>	95	27.9
<b>Schooling of patient</b>		
Attended	174	51.2
Not Attended	166	48.8
<b>Resident of patient</b>		
Rural	142	41.8
Urban	198	58.2
<b>Duration of illness</b>		
<b>6 Months</b>	32	9.4
>6 Months to 1 Year	59	17.4
>1 Year to 2 years	46	13.5
>2 Year to 3 years	48	14.1
>3 Year to 4 years	51	15
>4 Year to 5 years	29	8.5
>5 years	75	22.1



**Fig.1: Prevalence of Disorders**

### COMORBIDITY

For the any psychiatric disorder, the majority of the children 39.41% (134 out of 340 children) had at least one comorbids psychiatric disorder (figure no 2) and 6.76% (23 out of 340) had second comorbids psychiatric disorder. Most common comorbids child psychiatric disorder was Mental retardation (n=57) 16.8% followed by Conduct disorder (n=33) 9.7%, Epilepsy (n=24) 7.1% and OCD (n=6) 1.8%.

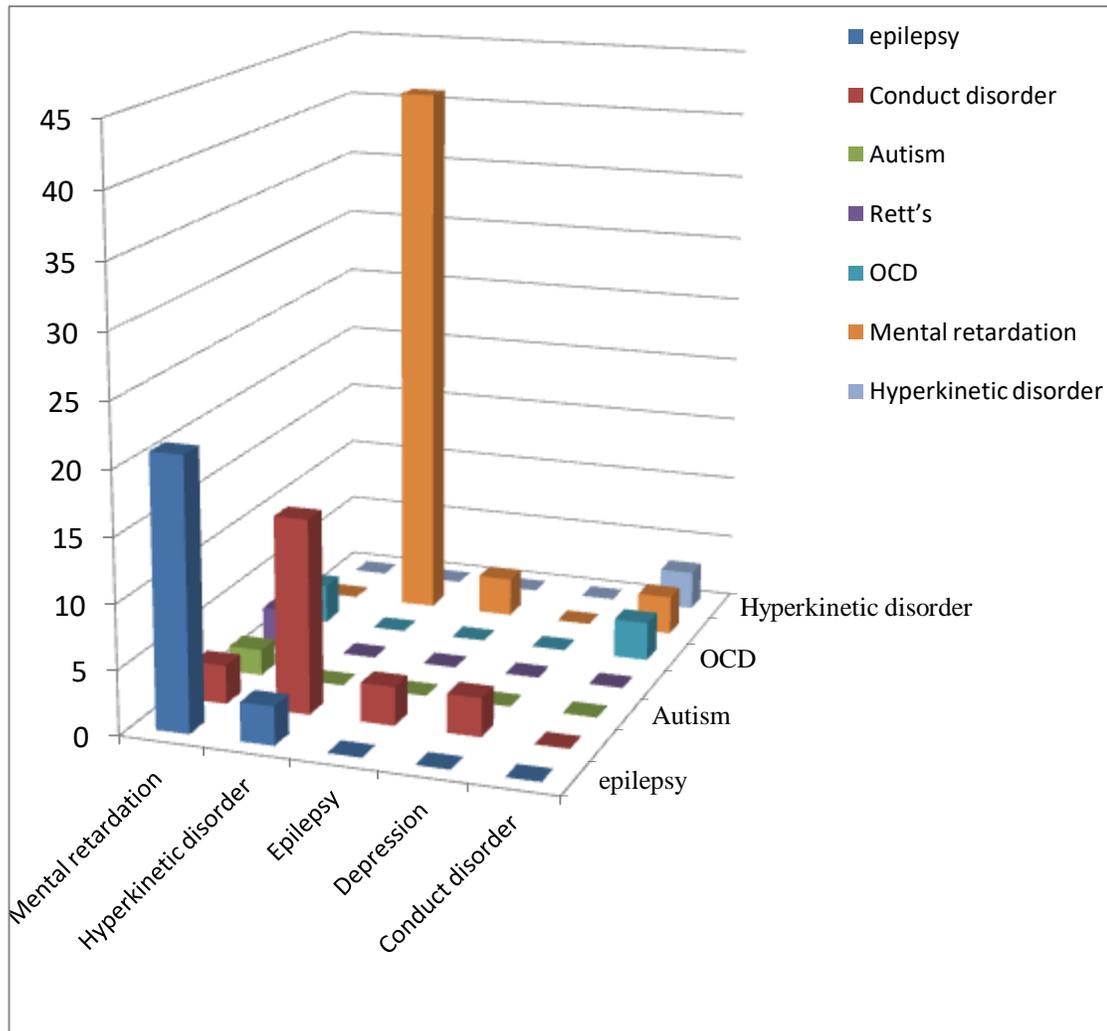
Mental retardation commonly comorbids with epilepsy 21 (20.8%), and rest of the disorders are Conduct disorder, Autism, Rett's, OCD (n=3) 2.97 present (p-value 0.001). n=5 (4.95%) of cases epilepsy as a second co-morbid disorder is present (p-value 0.072).

Hyperkinetic disorder commonly comorbids with Mental retardation (n=42) (43.75%) cases then

Conduct disorder (n=15) (15.62%) Cases and Epilepsy (n=3) (3.12%) cases (p-value 0.001). n=6 (6.25%) cases of epilepsy, n=6 (6.25%) cases of Disruptive behavior disorder and n=3 (3.12%) cases of Mental retardation are present as a second co-morbid disorder.

Epilepsy Commonly Comorbids with Mental retardation and Conduct disorder n=12 (23.07%) cases (p-value 0.001). n=3 (5.76%) cases of schizophrenia are present as a second co-morbid disorder.

Depression commonly comorbids with Conduct disorder n=3 (7.31%) cases (p-value 0.001). Conduct disorder commonly comorbids with Hyperkinetic disorder, Mental retardation and OCD (n=3) (14.28%) cases from each reported (p-value 0.001).



**FIGURE No 2**

### DISCUSSION:

In our hospital based study we found Mental retardation is frequently occurs in children n=101 (29.7%), followed by Epilepsy n=53 (15.3%), Depression n=41 (12.1%), conduct disorder n=21 (6.2%), in contrast from USA, Kathleen et al study found that Anxiety disorders are the most frequent conditions in children, followed by behavior disorders, mood disorders, and substance use disorders [17]. In china Xiaoli Y et al study shows Anxiety disorders were the most common (6.06%, 95% CI=4.92–7.40), followed by depression (1.32%, 95% CI=0.91–1.92%), oppositional defiant disorder (1.21%, 95%CI=0.77–1.87) and attention-deficit hyperactivity disorder (0.84%, 95% CI=0.52–1.36%)

[18]. In our study depression is 3rd most common disorder in compare with Kathleen et al depression was also 3rd most common disorder but from china Xiaoli et al depression was second most common disorder. Of the 805 children with a psychiatric disorder, 15.2% had two or more comorbid disorders. Emily et al found that Seventy percent of participants had at least one comorbid disorder and 41% had two or more [6], our study found lower rates, (n=134) 39.41% children had at least one comorbid disorder and (n=23) 6.76% had second comorbid disorder. Emily et al found most common diagnoses were social anxiety disorder (29.2%, 95% confidence interval [CI] 13.2-45.1), attention-deficit/hyperactivity disorder (28.2%, 95% CI 13.3-

43.0), and oppositional defiant disorder (28.1%, 95% CI 13.9-42.2) [6]. In our study we found Mental retardation (n=57, 16.8%) on top then Conduct disorder (n=33, 9.7%), and Epilepsy (n=24, 7.1%).

We found mental retardation is most common disorder in children with is commonly comorbid with Epilepsy (n=21) 20.8%, in Erik et al study Mental retardation comorbid with all internalizing and externalizing disorders then children without Mental retardation, significantly with anxiety and depression [19].

Attention deficit hyperactive disorder (ADHD) was second frequently occurring disorder in our study (n=96) 28.2%, and it is commonly comorbid with Mental retardation (n=42) (43.75%), then Conduct disorder (n=15) (15.62%), and Epilepsy (n=3) (3.12%) (p-value 0.001). And second most common comorbidity was n=6 (6.25%) epilepsy, n=6 (6.25%) Disruptive behavior disorder and n=3 (3.12%) mental retardation. Emily et al found that 84% of ADHD children had comorbid disorder [6]. Brook et al found Mental retardation in ADHD was 17.6% and children had lower academic marks and achievements [20] in contrast with our study shows higher rates of Mental retardation in ADHD children 43.75%. Larson et al study found 46% of children with ADHD had Mental retardation [5] it supports our findings, ADHD commonly comorbid with conduct disorder 27%, anxiety 18%, depression 14%, and speech problems 12% (all P < .05) after mental retardation [5].

Jana E et al found that epilepsy exhibited significant higher rates of both internalizing (41.5% p=0.034) and externalizing (26.4% p=0.032) disorders [2]. Study also indicates that children with new onset epilepsy exhibited significantly higher proportion of depressive disorder (22.6 p=0.01), Anxiety Disorder (35.8 p<0.05) and ADHD (26.4 p=0.01), our study shows epilepsy commonly comorbid with mental retardation, conduct disorder (n=12) 23.07%. In contrast with our study Jana E study was found no significant group difference for the risk of psychotic and conduct disorder (p >0.05) [2].

### CONCLUSION:

Most common disorder Child psychiatric disorder were mental retardation, followed by ADHD, Epilepsy, Depression, Conduct disorder and other disorders occurring in <5%. Majority of the children had at least one co-morbid psychiatric disorder (p-value 0.001) and 6.76% had second co-morbid psychiatric disorder. Mental retardation was most

commonly comorbid disorder followed by conduct disorder, epilepsy and OCD.

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