

Co morbid Psychiatric Disorders in Pervasive Developmental Disorders

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ABSTRACT

Background: From a theoretical point of view, the issue of diagnosing co-morbidity in Pervasive Developmental Disorder (PDD) is controversial. With some researchers favouring the practice and others questioning it. From the clinical point of view, however, it is perhaps a useful practice, as specific strategies can be directed towards alleviation of these disorders once they are identified. Some recent studies have been able to recognise several disorders such as depressive disorder, anxiety disorder, bipolar disorder etc. **Aim:** To systematically assess a sample of children and adolescents with PDD for diagnosable comorbid disorders using ICD-10/ DSM-IV. **Methods:** Subjects from the Child & Adolescent Psychiatry services of NIMHANS diagnosed to have PDD as per ICD-10 were evaluated using the Missouri Assessment of Genetic Interview for Children (MAGIC), Children's Yale-Brown Obsessive Compulsive Scale, Childhood Autism Rating Scale and Conners Abbreviated Rating Scale. Diagnosis (DSM-IV) was arrived by using MAGIC, supplemented by ratings on the other instruments and clinical evaluation. **Results:** There were 45 males and 5 female subjects with age ranging from 1 year 8 months to 16 years. Co-morbidity was evident in 46% of the sample in the form of ADHD, anxiety disorders including obsessive compulsive disorder, bipolar affective disorder and circadian rhythm disturbance of sleep. Comorbidity was found to be associated with more (normal and mildly impaired) or less developed (severely impaired) language system. **Conclusion:** Almost half of the sample in the study had a diagnosable co-morbidity. There was a significant group of cases with subsyndromal diagnoses.

Key words: Autism, co morbidity, nosology, pervasive, developmental, disorder

Introduction

It has become increasingly clear that children and adults with pervasive developmental disorders (PDD) have symptoms and other disorders not accounted for by PDD alone. Gillberg & Billstedt (2000) have classified these into 1) specific (for eg: tuberous sclerosis) and unspecific (for eg: epilepsy) medical diagnoses that are often made alongside autism, 2) a number of overlapping / co-morbid behavioural syndromes (for eg: ADHD) that co-occur with PDD, and 3) overlapping / co-morbid behavioural symptoms (for eg: aggression and self-injurious behaviour) that do not by themselves amount to the status of "disorder diagnosis".

Our focus is the issue of co-morbid psychiatric disorders with PDD. The practice of making a dual diagnosis in autism has been controversial. ICD-10 recommends that the diagnosis of PDD takes precedence over the other disorders that co-exist and that they should be subsumed under the single diagnosis of PDD. DSM-IV follows the same mode of operation, but of late there has been an openness regarding making an independent diagnoses.

To quote a recent author on the issue of diagnosing ADHD with PDD "Although the DSM-IV diagnostic criteria for Attention Deficit Hyperactivity Disorder (ADHD) exclude Pervasive Developmental Disorder (PDD), some clinicians find that the two disorders can be co-morbid and, in fact, make a dual diagnosis" (Yoshida, 2004). Gillberg (1991), a renowned researcher in his area, after an excellent review, clearly favoured the practice of diagnosing co-morbidity – "exclusion criteria of DSM and ICD i.e., those that rule out a diagnosis of autism in other disorder and a diagnosis of another disorder in autism, may have to be disregarded." Ghaziuddin and coworkers (Ghaziuddin et al, 1998) have reported on the co-occurrence of several psychiatric disorders according to ICD 10 / DSM-IV criteria along with PDD, especially Asperger's syndrome. Gillot et al (2001) found autistic children to score high on separation anxiety sub scale. Kim et al (2000) also found a prominence of mood and anxiety symptoms in their sample of high-functioning autistic children. These studies did not attempt to make syndromal diagnoses independent of PDD (Ghaziuddin et al, 1998),

There are advantages of following the practice of diagnosing co-morbid psychiatric disorders. This will promote research to focus on pathogenesis of these presentations, and lead to development of specific strategies directed towards alleviation of these disorders once they are identified. In view of this, we conducted this study.

Aim

The major aim of this study was to systematically evaluate co-morbid psychiatric problems in a sample of children diagnosed as having Pervasive Developmental Disorder, who presented to child and adolescent psychiatric services at NIMHANS.

More specifically the objectives of the study were to:

- Systematically evaluate the prevalence, pattern and diagnosability of co-morbid problems in patients presenting with Pervasive Developmental Disorders, using ICD-10 and DSM-IV.
- Evaluate the correlates and associations of psychiatric problems.

Materials and Methods

Sample for this study was obtained from patients (inpatient and outpatient) presenting to the child and adolescent psychiatric services of NIMHANS. Any subject meeting the diagnostic criteria in at least one classificatory system, either ICD-10 or DSM-IV, was considered to have a diagnosable disorder. Lifetime diagnoses were assessed in the sample.

Inclusion criteria for patients were as follows:

- Age up to 16 years
- Males and females meeting diagnostic criteria for Pervasive developmental disorder of ICD-10

Exclusion criteria for patients were as follows:

- Children who were deaf and blind
- Children with a progressive medical condition
- Children diagnosed with Rett's Syndrome
- Children diagnosed with childhood disintegrative disorder.

Instruments:

The following instruments were used in the study.

- Missouri Assessment of Genetic Interview for Children (MAGIC) (Reich, 1997) is a semi structured diagnostic interview schedule based on the DSM-IV diagnostic criteria. The Parent version was used.
- Childhood Autism Rating Scale (CARS) (Schopler and Reichler)
- Conner's Abbreviated Rating Scale (Conner, 1975)
- Vineland Social Maturity Scale (VSMS)-we used the Indian version modified by A. Malin.
- Children's Yale-Brown Obsessive Compulsive Scale

The patients who met the selection criteria were taken in for the study after getting informed consent from the parents. Each diagnosis was ascertained by one of the authors with extensive experience in Child and Adolescence Psychiatry. The parents were interviewed and the scales were administered. Observation of the child's behavior was routinely done. Sample size was 50.

Data collected was analyzed using SPSS software version 7.5.

Results

Sample Characteristics:

The sample consisted of children between ages of 20 months to 185 months. Of the 50 cases taken into the study, 45 were males and 5 were females giving sex ratio of 9:1. The VSMS scores had a mean of 67 and standard deviation was 30. Their language development profile showed that 5 children (10%) had a normal language development, 22 children (44%) had mildly impaired language development, 19 children (38%) had moderate impairment and 4 children (8%) had severe impairment in language.

Using DSM-IV / ICD-10 criteria 23 children (46%) were found to have a diagnosable co-morbid disorder and 17 children (34%) presented with a subsyndromal diagnosis; falling short of the complete diagnosis by just one criterion (Table 1).

Specific co-morbidity

Specific co-morbidity details are depicted in Table2

Attention Deficit Hyperactivity Disorder:

Attention Deficit Hyperactivity Disorder (ADHD) was found to be the commonest co-morbid condition in this sample with 10 children (20%) reaching syndromal status and another 8 children (16%) having a subsyndromal diagnosis.

Table 1
Distribution of Syndromal & Subsyndromal Co-Morbidity

Co-morbidity	N	%
Co-morbidity (syndromal)	23	46
Co-morbidity (subsyndromal)	17	34
Total	50	100

Anxiety Disorders:

22% of the subjects had an anxiety disorder. Out of a total of 11 cases, 7 (14%) cases were diagnosed as specific phobia, 3 (6%) cases as separation anxiety disorder and one (2%) case as generalized anxiety disorder. The minimum age of children with specific phobia was 32 months and the maximum age

168 months. The stimuli for specific phobia included men with beards, people wearing spectacles, a particular news reader (who according to parents and others was described as pleasant to look at) or tunes of certain advertisements / T.V. serials. Though many more children showed discomfort with similar stimuli only 7 cases (out of the 50) had it severe enough to meet all the diagnostic criteria. One gets the impression that the nature of stimuli was idiosyncratic in these autistic subjects.

Table 2
Pattern of Co-Morbidity

Diagnosis	Syndromal (n=23)		Subsyndromal (n=17)	
	N	%	N	%
ADHD	10	20	8	16
Specific Phobia	7	14	4	8
Separation – Anxiety Disorder	3	6	1	2
Bipolar Affective Disorder	3	6	1	2
Circadian Rhythm Disturbance	2	4	1	2
Obsessive Compulsive Disorder	2	4	0	0
Cyclothymia	1	2	0	0
Generalized Anxiety Disorder	1	2	0	0

Affective Disorders:

Three (6%) children met the diagnostic criteria of bipolar affective disorder and 1 (2%) case was diagnosed cyclothymia. Both the diagnoses were put together under the heading of mood disorder to look for an association. There was also 1 subsyndromal bipolar affective disorder. No patient was found to have unipolar depression. All cases diagnosed to have bipolar affective disorder fulfilled criteria for mania and depression (DSM-IV) at some point in time.

A case vignette:

This case was an 8 year-old boy diagnosed to have childhood autism with a past history of periodic variation in his mood state characterized by tearfulness, lying in bed most of the time, decreased appetite and sleep, and irritability. The periods of pervasive low mood would last for about a fortnight or so by which time he would gradually become normal and remain so for a variable length of time. After 2-3 such episodes he would have days of unusually cheerful mood, increased talkativeness, decreased need for sleep and reduced appetite lasting for about the same duration. He would have such episodes approximately three times in 6 months. He fulfilled the criteria for Bipolar Affective Disorder.

Obsessive Compulsive Disorder:

There were only 2 cases with syndromal obsessive compulsive disorder.

A case vignette:

This case was a 6-year-old boy who was diagnosed to have childhood autism. He had tendency to repeat certain actions multiple times. E.g. knocking down objects 2-3 times consecutively, if he tripped over a stone he would try to trip over it repeatedly multiple times. Similarly, if he got hurt accidentally he would keep knocking his head on objects multiple times. He could be diagnosed obsessive compulsive disorder as per DSM-IV.

Table 3
Co-Morbidity Versus Language Development

Language impairment	Co-morbidity				Total	
	Absent		Present		N	%
	N	%	N	%		
Normal	0	0.0	5	100.0	5	100.0
Mild	3	25.0	9	75.0	12	100.0
Moderate	13	68.4	6	31.6	19	100.0
Severe	1	25.0	3	75.0	4	100.0
Total	27	54.0	23	46.0	50	100.0

Circadian Rhythm Disturbance of Sleep:

There were 2 children with this diagnosis. One of them was a 5-year-old boy who had clear reversal of sleep-wake cycle till the age of 2 years. Subsequently this normalized without treatment. The other was a 3-year-old girl who had been having the disorder at the time of evaluation. She would sleep during the day time up to 5.30 pm and then remain awake till about 11.30 am the next day morning.

Association of co-morbidity

Co-morbidity with language functioning:

The association between co-morbidity and language functioning is depicted in Table 3. Out of the 23 cases with co-morbidity 9 subjects (39.1%) had mild impairment in language, 6 subjects (26.1%) had moderate impairment and 3 (13%) subjects had severe impairment. Co-morbidity to more frequent in the normal children and in those with mild and severe impairment of language functioning. This association was significant ($\chi^2 = 9.04$; $p < 0.03$).

Co-morbidity with intellectual functioning:

The association between co-morbidity and intellectual functioning is depicted in Table 4. Out of the 23 cases of co-morbidity, 15 (65%) cases were of moderate intelligence and 6 (26%) cases were of mild retardation. The other 2 cases fell in the moderate and severe retardation categories. The association was not found to be significant statistically ($\chi^2 = 4.73$; $p < 0.26$).

Table 4
Co-morbidity Versus Intellectual Functioning

Co-morbidity	IQ							
	Normal		Mild MR		Moderate MR		Severe MR	
	N	%	N	%	N	%	N	%
Absent	11	42.3	10	62.5	5	8.3	1	50.0
Present	15	57.7	6	37.5	1	91.7	1	50.0
Total	26	100	16	100	6	100	2	100

Discussion

In this study, using standardised instruments, co-morbidity was found to be present in 46% of the sample, including the subsyndromal co-morbidity cases the prevalence rose to 80%. Ghaziuddin et al (1998) studied co-morbidity in Asperger's syndrome and found that 65% of their cases had an additional co-morbidity. Thus co-morbidity is a fairly common pattern in PDD.

While examining specific co-morbidities following observations were made:

Attention Deficit Hyperactivity Disorder:

20% of the cases were found to have ADHD diagnosed as per DSM IV / ICD 10. ADHD was the commonest diagnosis found by Ghaziuddin et al (1998) in their sample of Asperger's syndrome in children. There are no studies, which the prevalence rate of attention deficit hyperactivity disorder in autism. There is acknowledgement to the extent that "children with autism frequently display characteristics that are associated with Attention Deficit Hyperactivity Disorder. These behaviours are among those most frequently reported by parents of children with autism" (Loveland & Belgin Tunali-Kotoski, 1997). In addition, it was found that 16% of the cases fell short of a syndromal diagnosis of ADHD by just 1 criterion.

Anxiety Disorders:

Co-morbid separation anxiety disorder, specific phobia and generalized anxiety disorder were put under the rubric of anxiety disorder to make up for the small number of individuals in each subgroup of anxiety disorder. Besides, as they all showed similar trends, combining them and treating them together as a group was justified.

The literature on autism is largely silent about co-morbid specific phobia and generalized anxiety disorder. Most of the studies have looked at presence of anxiety disorders in families with an autistic child; only a few have dealt with the issue in an autistic child. Gillot (2001) studied autistic children between the ages of 8 and 12 years and found the children to score high on the separation anxiety sub scale. It was a case control study and no diagnostic criteria were used to diagnose the disorder. Also, the age range was narrow. Thus the amount of information that can be derived from his study is limited.

In the 11 cases of anxiety disorder maximum clustering was observed in the children with normal language development and those with mild and moderate impairment of development of language.

Affective Disorders and OCD:

Depression has been reported as one of the most common psychiatric disorders in persons with autism (Ghaziuddin et al, 2002), particularly in adolescents and adults. However, when symptoms of affective disorder develop, it is often difficult to make a formal diagnosis due to the individual's difficulty in communication of his/her feelings (Lainhart & Folstein, 1994). No studies have assessed the prevalence of affective and obsessive compulsive disorders in children with PDDs. There are, however, studies that have reported on the treatment of symptom clusters characteristic of these disorders. In two open-labelled studies (Brasic, 1994; Huxings, 1996), explosive outbursts, aggression, and self-injurious behavior responded well to sertraline or fluoxetine. In the fluoxetine series, hypomania-like side effects, including restlessness, insomnia, overactivity, decreased appetite and agitation, occurred in approximately 25% of the subjects. McDougle et al (1996), in another double-blind placebo-controlled study, found that fluvoxamine reduced compulsive behaviors and aggression in 15 (50%) of 30 adults with autism.

Sleep Disorders:

The available literature on sleep disorders in autism puts the prevalence between 44% and 89% (Clements 1986; Hoshino 1984; Wiggs 1996). Such wide variations in the rates are due to the differences in diagnostic criteria and the differences in the reporting periods of the problems, current or in the past. A lower prevalence for co-morbid sleep disorders was reported in the present study. The reason for his could be that the studies quoted in literature were exclusive sleep-studies in which in-depth analysis was done using polysomnography, while the present work was at a clinical level wherein the diagnosis was based on the history.

Amongst the different subgroups of autistic children categorized according impairment in language development, co-morbidity was found to be more frequent in the children with normal development of language and those with mild and severe impairment of language. Thus co-morbidity was found to be associated with more or less well developed language system. This association has not been well studied in the literature on autism. Better language ability means more receptiveness to environmental cues, probably due to better ability to assimilate the experiences and a greater influence of the environment on the inner psychic world; better communication and expressivity. Sigman & Ungerer (1984) in their study found that autistic children with advanced level of symbolic ability formed attachment to mothers and showed more anxiety at separation, with more social behaviour and physical contact on reunion.

The following were the limitations of this study:

- The sample size of the study was inadequate to determine associations between specific co-morbidities and different categories of PDDs children.
- Samples were obtained from a tertiary centre. This limits the generalizability of the conclusions drawn from the sample.
- Language development was an important correlate. In this study it was inferred indirectly from clinical interview and VSMS data. No instrument was used for formal assessment.

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