# CONDUCT DISORDER : AN ANALYSIS OF SUBTYPES

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## ABSTRACT

**Objective:** This study sought to identify cormorbidity, aggression, hostility and severity across the subtypes of CD based on the age of onset as per the DSM-IV criteria.

**Design:** Descriptive study.

**Place and duration of the study:** This study was carried out in a private psychiatric clinic in Mumbai between January 2007 and January 2008.

**Subjects and Methods:** Referred children aged 7-16 years old were clinically assessed using clinical interviewing to determine comorbid psychiatric diagnoses. The Modified Overt Aggression Scale (MOAS), Buss Durkee Hostility Inventory (BDHI), Clinical Global Impressions Scale (CGI) and Clinical Global Assessment Scale (CGAS) were used in quantitative assessment. Parental psychiatric diagnosis was ascertained via clinical interview.

**Results:** Childhood onset CD was associated with greater rates of ADHD, anxiety disorders, complex cormorbidity, higher perceived hostility scores and lower rating on the CGAS scale than adolescent onset CD. Greater number of mothers in the childhood onset CD group had borderline personality disorder. Both parents across the group had high rates of major depression while fathers across both groups showed the presence of alcohol and nicotine dependence.

**Conclusion:** Understanding age of onset related patterns of comorbidity and psychopathology may help therapeutic intervention in children and adolescents with CD.


**Key words:** Conduct disorder, Child, Adolescent, Co-morbidity.

## INTRODUCTION

Conduct disorder (CD) is one the commonest disorders seen in child psychiatry settings and may constitute half of all referrals in some cases[1-3]. A child with conduct problems, academic decline and family disorganization is often the commonest referral in a child guidance clinic or a school counselor's clinic[4]. Though once presumed that CD is more common in boys, a fact that holds true today, an upsurge of girls presenting with conduct disorder has been noted[5].

CD has been divided by into two subtypes as per the DSM-IV classification of psychiatric disorders, an early (childhood) onset and a late (adolescent) onset type[6]. Early onset has been defined as the onset of symptoms before the age of 10 years while late onset has been defined as the onset of symptoms after the age of 10 years. A number of studies have been done trying to differentiate and delineate the two subtypes. It has been noted that early onset CD often has a prolonged course and is more resistant to treatment. Adolescent or late onset CD however has a more benign course and is more amenable to treatment[7]. Children with early onset CD are more aggressive and drop out of school early, while being more prone to comorbid psychiatric disorders[8]. Both groups however need early intervention and treatment and are more prone to develop antisocial personality disorder in adulthood[9].

There are a number of barriers to the effective treatment of conduct disorder. Though we have extensive reviews on the efficacy of both psychosocial interventions[10-13] and psychopharmacological treatments[14-17] in CD, it is the right combination and individualization of appropriate treatments that matter most. Another issue that complicates the management of CD is the high level of individual variability and heterogeneity noted in this clinical group[18-19].

This heterogeneity may be related to severity, chronicity, pervasiveness from home based to school based and community based disruptive behaviors, age of onset, peer influences and the degree of family disorganization[20]. It is well known that children and adolescents with CD have comorbid psychiatric disorders. These may be in the form of attention deficit disorders[21], childhood or adolescent onset depression and bipolar disorder[22], substance abuse disorders[23], learning disability[24], and anxiety disorders[25-26]. Studies on the prevalence of child psychiatric disorders abound Indian literature with few studies focused on conduct disorder[27-29].

The present study was conducted with the aim of examining the psychiatric comorbidity in both sub-

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types of CD, to determine the differences in levels of hostility, aggression and severity of symptoms across both subtypes and to study the patterns of psychiatric disorders in parents of children with CD across both subtypes.

## SUBJECTS AND METHODS

Patients were accrued by consecutive referral to a private psychiatric clinic. Patients were assessed between January 2007 and January 2008. 92 consecutive clinically referred children and adolescents between the age of 7-16 years that met the DSM-IV criteria for conduct disorder as assessed by the author were the sample for study. These 92 were selected out of a total of 306 consecutive clinical referrals. Of these 92, all were living with their biological parents.

Socio-demographic data of relevance was collected using a semi-structured proforma filled by the parents. To investigate patterns of comorbidity by DSM-IV subtypes, at the time of clinical assessment the sample was divided by maternal report of age of onset into an early onset type and a late onset type according to DSM-IV. Both groups were compared on psychiatric diagnoses, hostility, aggression, severity and pattern of parental psychiatric diagnoses. Parents provided informed and valid consent and the children and adolescents assented to the evaluation procedure.

The following scales and methods were used in the evaluation:

**Clinical Interview:** The children, adolescents and parents were interviewed clinically to ascertain the presence of psychiatric diagnoses other than conduct disorder. All these diagnoses were established using the DSM-IV criteria[6]. Questions included the nature and type of psychiatric symptoms, duration, onset and offset, recurrences, treatments, past medications and psychosocial therapies along with pervious psychiatric diagnoses. All the diagnoses were on a lifetime basis.

**Modified Overt Aggression Scale (MOAS):** This is a 20 item scale that assessed the frequency and severity of aggression during the previous month and is commonly used to rate aggression in clinical settings[30-32]. Parents completed the scale. The MOAS assesses four categories of aggression including Verbal Aggression (threats of harm to others), Objective Aggression (impulsive property destruction), Self Aggression (self injurious behavior) and Other Aggression (physical assault).

**The Buss Durkee Hostility Inventory (BDHI) (child version):** This scale was used to assess child self report hostility. This scale yields a total score, an Expressed Hostility factor and an Experienced Hostility factor. The convergent and discriminant validity of this scale is adequate[33-35].

**Symptom Severity and Impairment:** This was measured using the Clinical Global Impressions Severity Scale (CGI-S)[36] and daily functioning and impairment was measured using the Clinical Global Assessment Scale (CGAS)[37].

All the subjects in the study were English speaking and hence it was easy for them to answer the rating scales. The above rating scales were chosen for being the appropriate with the aims of the study and assessing the items they represented.

**Statistical Analysis:** Statistical analysis was done using Chi Square test and t-test for continuous variables while comparing the two CD groups. The entire analysis was done by a qualified bio-statistician.

## RESULTS

Out of the 306 screened 92 (30.07%) met a diagnosis of conduct disorder. The children were screened via a clinical interview by the psychiatrist. All children who met a diagnosis of conduct disorder also had one additional psychiatric diagnosis. On comparing the socio-demographic data, both groups were well matched in all aspects. Parents of all children were educated till graduation. Majority of parents in both groups were from nuclear families and majority of the subjects had both parents who were working. The mean age of onset in the subjects in the childhood onset CD group was $6.9 \pm 2.8$ years ($n = 44$) and in the adolescent onset CD group was $11.3 \pm 3.3$ years ($n = 48$).

High rates of comorbidity were noted in both groups (Table 1). Both groups had greater numbers of males than females. The prevalence of major depression and bipolar disorder were similar across both groups. High rates of childhood anxiety disorders and attention deficit hyperactivity disorder (ADHD) (all subtypes) were noted in the childhood onset CD group ($p = 0.0001$). An interesting finding was the lack of any form of substance abuse in both groups. The adolescent onset group however had a few subjects with nicotine dependence (10.42%). A larger number of subjects in the childhood onset CD group had more than three psychiatric diagnoses together ($p = 0.0002$). The presence of complex comorbidity (more than 6 psychiatric diagnoses) was equal in both groups.

On comparing the average number of comorbid diagnoses, childhood onset CD subjects had significantly greater cormorbidity than adolescent onset CD ($p = 0.0001$) (Table 2).

On assessing psychopathology, the level of severity in case of CD was similar across both groups (Table 3). On the CGAS however childhood onset CD subjects scored lower than adolescent onset CD ($p = 0.0001$). The aggression scores on the MOAS across both groups showed no significant difference. Hostility scores revealed no significant difference in expressed hostility, but children in the childhood onset CD groups had greater

**Table 1**
**Comorbidity across both groups**

| Variable | Childhood Onset CD (N=44) | Adolescent Onset CD (N=48) | t / $x^2$ | p value |
|---|---|---|---|---|
| | Mean ± SD / N (%) | | | |
| Age of onset(years) | 6.9 ± 2.8 | 11.3 ± 3.3 | 6.8641 | 0.0001* |
| Females | 8 (18.18) | 4 (8.34) | | NS |
| Males | 36 (81.82) | 44 (91.66) | | NS |
| Depression | 18 (40.91) | 11 (22.92) | | NS |
| Bipolar Disorder | 6 (13.64) | 2 (4.17) | | NS |
| Anxiety Disorders | 30 (68.18) | 9 (18.75) | 13.6 | 0.0001* |
| ADHD | 41 (93.18) | 14 (29.17) | 13.1 | 0.0001* |
| Substance Use | — | — | | |
| Cigarette Use | — | 5 (10.42) | | |
| Total Diagnoses more than 3 | 26 (59.09) | 10 (20.84) | 12.2 | 0.0002* |
| Total Diagnoses More than 6 | 3 (6.82) | 4 (8.34) | | NS |

Chi square test and t test used in the assessment.

* significant.

**Table 2**

**Average number of Co-morbid Diagnoses**

| Variable | Childhood Onset CD (N = 44) | Adolescent Onset CD (N = 48) | t value | p value |
|---|---|---|---|---|
| Average number of co-morbid diagnoses(Mean ± SD) | 3.61 ± 0.77 | 2.69 ± 0.82 | 7.9328 | 0.0001* |

t test used in the statistical analysis

* significant.

**Table 3**

**Aggression, Hostility & Severity across the groups**

| Variable | ChildhoodOnset CD (N = 44) | Adolescent OnsetCD (N = 48) | t value | p value |
|---|---|---|---|---|
| **CGI scores** | 5.4 ± 0.9 | 5.1 ± 0.8 | *1.6925* | NS |
| **CGAS scores** | 42.3 ± 7.6 | 49.7 ± 6.8 | *4.9047* | **0.0001*** |
| **MOAS scores** | 59.6 ± 21.2 | 52.3 ± 30.2 | *0.1867* | NS |
| **Total Hostility** | 8.39 ± 1.9 | 6.9 ± 1.7 | *3.9698* | **0.0001*** |
| **Perceived Hostility** | 3.61 ± 0.77 | 2.69 ± 0.82 | *2.1315* | **0.0358*** |
| **Expressed Hostility** | 3.61 ± 0.77 | 2.69 ± 0.82 | *0.4604* | NS |

t test used in the statistical analysis

* significant.

**Table 4**

**Maternal & Paternal Psychiatric Diagnoses Across Both Groups**

| Maternal Psychiatric Diagnosis N (%) | | |
|---|---|---|
| **Psychiatric Diagnosis** | **Childhood Onset CD (N = 44)** | **Adolescent Onset CD (N = 48)** |
| **Major Depression** | 15 (34.09) | 17 (35.41) |
| **Borderline Personality Disorder** | 8 (18.18) | 1 (2.08) |
| **Schizophrenia** | —— | 1 (2.08) |
| **Panic Disorder** | 5 (11.36) | 4 (8.33) |
| **Paternal Psychiatric Diagnosis N (%)** | | |
| **Psychiatric Diagnosis** | **Childhood Onset CD (N = 44)** | **Adolescent Onset CD (N = 48)** |
| **Major Depression** | 11 (25) | 13 (27.08) |
| **Alcohol Dependence** | 9 (20.45) | 10 (20.83) |
| **Nicotine Dependence** | 38 (86.36) | 41 (85.41) |
| **Other Substance Use** | 1 (2.27) | — |
| **Antisocial Personality Disorder** | 4 (9.09) | 2 (4.16) |
| **Bipolar Disorder** | 1 (2.27) | 1 (2.08) |
| **Schizophrenia** | — | 1 (2.08) |
| **Panic Disorder** | 1 (2.27) | —— |

perceived hostility scores than the adolescent group ($p = 0.0358$).

On studying psychiatric diagnoses in mothers across both groups, major depression was seen across both groups. A greater number of mothers of childhood onset CD subjects had borderline personality disorder as a diagnosis (Table 4). On studying paternal psychiatric diagnoses, substance abuse was more common in the form of alcohol dependence and nicotine dependence in the childhood onset group as compared to fathers of the late onset group. Here too major depression was present in fathers of both groups (Table 4).

## DISCUSSION

Since this was a private psychiatric clinic sample, we had more parents that were educated unlike in a community sample. Majority of subjects had both parents working, a factor that may have contributed to the development of CD though beyond the scope of this research.

Major depression was seen across both groups. The prevalence across both groups was between 20-40%. This is in keeping with rates noted across previous studies[38-41]. Major depression is often found in both children and adolescents with CD and may precede the development of CD[42]. It is yet to be ascertained whether CD with major depression is a distinct subgroup on its own with a varied prognosis, course and need for separate treatment measures[43-44].

A high rate of ADHD comorbidity has been demonstrated in subjects with CD[21,45]. Early onset CD seems to have a greater preponderance with ADHD though ADHD is universal is across all forms of CD, a finding replicated in our study[46]. ADHD may precede the onset of CD in most cases and many researchers consider the hyperactive-impulsive form of ADHD to predispose a child to CD[47]. The presence of ADHD even significance a prolonged illness course and greater resistance to treatment and behavioral interventions. Treatment for ADHD may be effective fro symptoms of both disorders[48-51].

We have reported a high rate of childhood anxiety disorder in the childhood onset CD group. Anxiety disorders are known to be more common in children with CD[52]. The presence of anxiety disorders are known to compound the severity of CD. In majority of cases it is thought that anxiety disorders shall precede the onset of CD. Anxiety may also be consequence of child's behavioral problems and subsequent stress[53].

Unlike studies abroad, our study did not demonstrate high rates of substance abuse disorders in adolescent onset CD. This could be due to socio-cultural factors in India and the west. In India, it is very often after schooling that most adolescents take to alcohol rather than while still in school. Associations between CD and substance abuse are abundant though our study may not be consistent with previous research[54-56].

Conduct disorder often has greater comorbidity than other child psychiatric disorders. The presence of complex comorbidity (more than 6 psychiatric diagnoses) is often the result of social and environmental factors, inter and intrapersonal stressors and genetic factors combined together[57]. Our study did demonstrate presence of this in both groups of CD.

There is increased aggression, hostility, emotional arousal, emotional reactivity in children ad adolescents with CD that leads them to express conduct disordered behavior[58]. Children with CD are frequently in conflict with people around them and have under developed cognitive skills to handle negative affects. They may develop persistent attribution biases, cognitive errors and misinterpretations that may result in elevated levels of self perceived hostility, hate and aggression[59-62]. In our study though aggression and hostility were consistent across both groups, children with childhood onset CD reported

higher scores on perceived hostility indicating that such biases may have been present.

Parental psychopathology is well known in CD. Unlike findings in earlier studies none of our mothers demonstrated substance abuse, again due to socio-cultural factors and outlook in India where fewer women take to substance abuse. Depression, anxiety, personality disorders on the borderline and antisocial spectrum along with substance abuse have been documented in parents of children with CD[63-65].

Our study however has its limitations. It is cross sectional in nature with a smaller sample size compared to many studies on CD done previously. Since we have used maternal reports for the age of onset of CD a recall bias may have been present. The sample too may have been biased as it is a psychiatric clinic sample and not a community based sample. Biases for referral may have been present. Most of the subjects were from financially stable unlike CD seen in community studies. Yet we were able to demonstrate some differences between two subgroups of CD.

## CONCLUSIONS

CD is a complex developmental child and adolescent psychiatric disorder that involves the interplay of socio-environmental factors, parental psychopathology, genetic loading and early childhood psychopathology. The patterns of symptoms and psychopathology in CD shall play a vital role in the assessment and treatment of CD and needs a complete understanding of comorbidity and the other factors involved. It is important that a multi-diagnostic and multi-pronged approach be kept in mind when treating subjects with either early or late onset CD.

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