



## Oppositional defiant disorder (ODD), the forerunner of alcohol dependence: A controlled study



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### ABSTRACT

There are common genetic, neurobiological and psycho-social substrates for oppositional defiant disorder (ODD) and substance dependence. ODD can be regarded as the mildest and earliest form of disruptive behavioral disorder and also represents the threshold of vulnerability for substance dependence. But it is a less researched area. The aim of this research was to study any possible association between childhood ODD and adult alcohol dependence. Data are presented from a non probability sample of 100 adult alcohol dependent subjects and equal number of biologically unrelated control subjects. Assessment was conducted by the instrument Semi-Structured Assessment for the Genetics of Alcoholism for both the assessment of ODD and alcohol dependence. The results of this study demonstrated significant association between childhood ODD and adult alcohol dependence. The association remained significant even after the exclusion of the possible confounding effects of the presence of conduct disorder and attention deficit hyperactivity disorder. Our study should encourage further research in this area and is expected to open up an opportunity for preventive research.

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### 1. Introduction

Oppositional defiant disorder (ODD) is defined as a recurrent pattern of negativistic, defiant, disobedient and hostile behaviors leading to impairment of day to day activities. The behaviors characteristic of ODD can lead to difficulties in all realms of social, academic, or occupational functioning. The central feature is conflict with authority. Problem behaviors are most frequently seen in interactions with those in charge (DSM IV, 2000). It is different from conduct disorder (CD) by the fact that diagnosis of CD requires persistent violation of others' rights and social norms. There are two distinct schools of thoughts conceptualizing both the disorders in terms of either dimensions or categories. ODD has milder severity and an earlier onset as compared to CD. It has a different developmental trajectory in a substantial proportion of subjects. Hence, a dimensional approach might be clinically more appealing, but for the purposes of research, categorical approach might be more meaningful.

The National Co-morbidity Survey Replication, a retrospective study of 3199 adults using DSM-IV criteria reported a lifetime prevalence of ODD as 10.2% (Angold and Costello, 1996). Research

in ODD so far has been directed to study temperament, certain psychological traits and environmental factors to explain difficult behaviors in children. Research in cognitive processing has focused on how defiant children develop a hostile perspective based on early negative experiences. In comparison to other children, those with ODD are more vigilant for hostile cues from others and twice as likely to generate aggressive responses to problems (Coy et al., 2001). Additional research shows how they have other deficits in social problem solving, using less pertinent social information and generating fewer alternative reactions. Studies focusing on information processing outside of relationships have found that children with ODD have difficulty with response preservation and motivational inhibition tasks (van Goozen et al., 2004). Various environmental factors are correlated with increased risk for ODD. Many family attributes are correlated with higher rates of oppositional behaviors. These include poor parenting practices, parental discord, domestic violence, low family cohesion, child abuse, and parental mental disorder, especially substance abuse and antisocial personality disorder (Greene et al., 2002).

Similar kind of studies to find out common temperamental or environmental substrates of substance use disorders has also been conducted. Temperament deviations have been shown to be associated with psychopathology and substance abuse (Reich et al., 1993). Temperamental trait deviations found in youth at high risk for alcohol dependence include reduced attention span (Schaffer et al., 1984); high impulsivity (Noll et al., 1992); negative affect

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states, such as irritability, hostility (Brook et al., 1998); and emotional reactivity (Blackson, 1994). Parental divorce and marital conflict are associated with increased rates of offspring alcohol initiation heavier use of these substances (Needle et al., 1990) and greater risk of problem use (Fergusson et al., 1996; Hoffman and Johnson, 1998; Needle et al., 1990). Both these psychological and environmental factors are identical with that of the findings in ODD.

Observing the commonality between ODD and alcohol dependence in relation to their underlying overlapping temperament and social factors, it would be worthwhile to study their association which is under evaluated till now. This is in contrast to the extensive literature on CD, which generally has indicated CD to be a common antecedent of substance use disorders (Manuzza et al., 1991; Boyle et al., 1992; Wilens et al., 1996; Moss and Lynch, 2001). The reason for limited research on ODD might well be explained by the fuzzy distinction between ODD and CD and questionable stability of ODD (Lahey et al., 1997; Loeber et al., 2002; Maughan et al., 2004).

From the literature it is evident that ODD antedates CD. Our hypothesis is that ODD may also antedate substance use disorders including alcohol dependence. With its earlier onset and milder form, ODD carries a prospect of future preventive research (Angold and Costello, 2001). It can also lower the threshold of vulnerability for substance use disorders which may have its clinical and research implications. Hence with this background the aim of this research was to find out whether there is an association between ODD and alcohol dependence. In other words, whether it is possible to identify the high risk children at the earliest and with the lowest threshold of vulnerability for alcohol dependence in future?

## 2. Methods

### 2.1. Study samples

**Index group:** Sample consisted of subjects recruited from the patient population attending the Outpatient and the Inpatient services of the Drug De-addiction and Treatment Centre (DDTC) of a tertiary care medical institute in Northern India. One hundred subjects with the diagnosis of alcohol dependence according to ICD10 (WHO, 1992) or DSM IV either in past or present and meeting the inclusion and exclusion criteria were selected as study subjects. The index group subjects were the 'cases' for this study.

#### *Inclusion criteria for index group*

- (1) Fulfilling ICD10 criteria of alcohol dependence past/present.
- (2) Either sex.
- (3) Age < 50 years.
- (4) Those who gave informed consent.

#### *Exclusion criteria for index group*

- (1) Childhood psychotic illness.
- (2) Subjects with other substance use/dependence (except tobacco).
- (3) History suggestive of mental retardation.
- (4) Any organic disease – Visual, hearing problem, pervasive development disorders and seizure disorder.

**Control group:** This consisted of one hundred persons accompanying index group subjects hailing from similar socio-economic background but who had never used alcohol in their lifetime. The control subjects were neither biologically related nor the spouse of the index group subjects. They were other male persons accompanying the subjects, like their neighbors, their

colleagues or someone from subject's in-laws. They were also screened for childhood disruptive disorders and ADHD (childhood/adult) using the same instruments. The cohesive socio-familial environment of India has perhaps enabled us to obtain such a unique control group. The control group subjects were the 'controls' for this study.

### 2.2. Instruments used

**Patient input sheet:** Includes socio demographic profile and clinical diagnosis.

**Semi Structured Assessment for the Genetics of Alcoholism (SSAGA-IV):** The SSAGA-IV was designed to assess the physical, psychological, and social manifestations of alcohol abuse or dependence and other psychiatric disorders. It is a polydiagnostic instrument that assesses alcohol, nicotine, and marijuana and drug abuse/dependence. This scale was used to assess alcohol dependence in this study. This same instrument was also applied to diagnose CD and ODD in the study subjects during their childhood (Hesselbrock et al., 1999; Bucholz et al., 1994).

**Kiddie-Sads-Present and Lifetime Version (K-SADS-PL) Version 2.1 of October 1996:** The K-SADS-PL is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology according to DSM-III-R and DSM-IV criteria. K-SADS-PL was used to diagnose Childhood ADHD retrospectively. The K-SADS-PL is a semi-structured interview. The probes that are included in the instrument do not have to be recited verbatim. Rather, they are provided to illustrate ways to elicit the information necessary to score each item (Kaufman et al., 1997).

### 2.3. Procedure

Ethical clearance was obtained from the institutional ethics committee. Subjects with a clinical diagnosis of alcohol dependence as per ICD10 after discussion with consultant psychiatrist and meeting the inclusion and exclusion criteria were approached for participation in the study. They were explained about the nature of the study and subjects willing to participate and providing informed consent were recruited. A cross-sectional examination was completed by applying SSAGA IV scale to reconfirm the diagnosis of alcohol dependence. The same instrument was also applied to diagnose childhood disruptive disorders (CD/ODD) in the past. KSADS-PL was applied to diagnose ADHD in childhood. Taking into consideration the retrospective nature of the study and the potential for recall bias, whenever possible the information provided by the patient was corroborated with other informants like their elder sibs or parents.

### 2.4. Data analysis

Socio demographic profiles of both the index and control groups were compared with the help of Chi square test or Fisher's exact test wherever applicable. An association between alcohol dependence (AD) and oppositional defiant disorder (ODD) was studied using chi square test and the strength of association was measured by odds ratio (OR). For association, significance level was kept as  $p$  value < 0.05. Their association was reexamined by same statistical methods after excluding the role of possible confounders like conduct disorder (CD) and attention deficit hyperactive disorder (ADHD).

## 3. Results

In the study groups i.e. in both the cases and the controls there were more number of married people; most of the people were clerk/shop owner or farmer and matriculate. Most of them came

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