

## Correlation between age of onset of drinking dyscontrol and alcohol related milestones

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### Abstract

**Introduction:** There has been association between a lowered age of onset and increased severity of alcoholism and subsequent development of alcohol dependence. This study was carried out to evaluate if any correlation exists between age of onset of drinking dyscontrol and alcohol associated milestones in male subjects attending de-addiction center at a tertiary care hospital.

**Materials and Methods:** Total 100 male alcoholic patients attending the de-addiction center were enrolled in the study after obtaining their informed consent. The course of alcoholism was recorded as per a list of 25 items which covered various alcohol related milestone like quantitative progression and physical and psychosocial complications.

**Results:** Age of subjects at the onset of three drinking dyscontrol milestones - daily, day time and morning drinking - were taken into consideration. Correlation between all these three milestones and various social and physical milestones such as loss of job, drunken brawls, tendency to borrow money for drinks, absenteeism, blackout, morning shakes, memory lapses and hospitalization were highly significant ( $P < 0.001$ ).

**Conclusion:** Age of onset of three drinking dyscontrol milestones are significantly associated with various social and physical milestones.

**Keywords:** Alcoholism, Drinking dyscontrol, De-addiction, Alcohol related milestones.

### Introduction

Alcoholism is the inability to control drinking due to both a physical and emotional dependence on alcohol. Alcoholism is on increase in India especially among adult population. Studies suggest that relatives of alcoholics have increased risk of alcoholism ranging from three-to-five folds.<sup>1</sup> Several researchers across the world have demonstrated that individuals who have positive family history in terms of alcoholism tend to have an increased severity of alcohol dependence.<sup>2,3</sup> Methods to determine family history vary from study to study. Some researchers have considered parental alcoholism as the sole factor while studying family history.<sup>4</sup> Others have used multigenerational models to classify alcoholism.<sup>4,5</sup> Family Pattern of Analysis (FPA), proposed by Turner et al., explained more variance than other methods.<sup>6</sup> As a result, Zucker et al. advocated the need for the use of a standardized protocol across the studies.<sup>7</sup>

Individuals with lowered age of onset of drinking alcohol have higher chances of increased severity of alcoholism as well as subsequent development of alcohol dependence. Those with the early age of onset is associated aggression and a failure to comply with law,<sup>8</sup> social role maladaptation, loss of behavioral control when drinking,<sup>9</sup> and childhood criminality.<sup>10</sup> Several reasons have been suggested for initiation of alcohol use early in life which include pressure from peer groups, experimentation, and curiosity.

The data regarding any possible relationship between age of onset of drinking and family history of alcoholism and its association with severity of alcoholism in the Indian population is not clear. Indian studies lack the details regarding methods used to obtain family history,<sup>11</sup> are carried out in de-addiction settings<sup>11,12</sup> and the reliability of the family history information is not provided.<sup>13</sup> This study attempted to evaluate if any correlation exists between age

of onset of drinking dyscontrol and alcohol associated milestones in male subjects attending de-addiction center at a tertiary care hospital.

### Materials and Methods

The present study was a hospital based cross-sectional study which was conducted at the drug de-addiction and treatment center of a tertiary care hospital. Institutional ethical committee approved the study design before commencement.

Patient fulfilling the DSM-IV diagnostic criteria for alcohol dependence were included in the study. Patients having any other additional substance dependence/psychiatric disorder were included provided alcohol dependence remains the focus of concern. Similarly patients suffering from any medical disorder were included if criteria for alcohol dependence was met. Patients with any major active psychiatric, neurological or physical conditions which may interfere with assessment were excluded from the study.

Total 100 male alcoholic patients attending the de-addiction center were included by convenient stratified sampling method in the study after informed consent. They were assured about anonymity and interviewed separately. The study was conducted at the detoxification program when the subjects were drug-free. The subjects and one or more of their close family members were interviewed to obtain information regarding selected demographic features, family history and course of alcoholism. The course of alcoholism was recorded as per a list of 25 items which covered various alcohol related milestone like quantitative progression and physical and psychosocial complication. The subjects and their family members were encouraged to discuss and arrive at a consensus for age at onset for each milestone, if any discrepancy emerged e.g. if pattern of use

of a bottle a day was predated than the pattern of use of half a bottle a day, it was pointed out and resolved in all.

Data were collected with the help of pre-designed and pre-tested schedule and was analyzed with the help of Epi info software version 7. The means ages at onset for various alcohol related milestones were used to obtain a rank order profile of their progression. In addition, the correlation between three drinking dyscontrol milestones (daily, day time and morning) and other specified physical and social milestones were studied.

## Results

Total 100 alcohol dependent patients were included in the study. In this study, majority of alcohol-dependents belong to age group 20-40 years (64%). 29% of alcohol dependents worked as unskilled labourers, 68% as semi-skilled labourers, 1% as skilled labourers and 2% as professionals. Majority of patients belonged to the lower socio-economic strata (Class-IV of Kuppuswami's Classification). (Table 1).

**Table 1:** Socio-demographic profile of alcohol-dependents

Particulars	No. of Patients	Percentage
<b>Age in years</b>		
0-20	3	3
20-40	64	64
40-60	32	32
Above 60	1	1
<b>Sex</b>		
Male	100	100
Female	0	
<b>Occupation</b>		
Laboratory	29	29
Semi-Skilled	68	68
Skilled	1	1
Professional	2	2
<b>Socio-Economic Status</b>		
Class-I		
Class-II	5	5
Class-III	41	41
Class-IV	49	49
Class-V	5	5
<b>Education</b>		
Illiterate	18	18
Primary	22	22
Secondary	39	39
Graduate	21	21

The correlation co-efficient between age at onset of three drinking dyscontrol milestones – (i) daily (ii) day time and (iii) morning drinking – and certain social and physical milestones demonstrated that the correlations were highly significant ( $P < 0.001$ ) between all the three drinking dyscontrol milestones and loss of job, drunken brawls, tendency to borrow money for drinks, absenteeism, blackout, morning shakes, memory lapses and hospitalization. Correlation between delirium tremens and day time morning drinking was significant ( $P < 0.001$ ) as well as between delirium tremens and daily drinking ( $P < 0.01$ ). The sequencing of 12 milestones from our study shows that their orders are within  $\pm 2$  ranks. For 8 and 4 milestone respectively compared to the similar symptoms listed out by Schuckit et al (1993)<sup>14</sup> and Jellinek (1946)<sup>15</sup> (Table 2).

**Table 2:** Correlation co-efficient between age at onset of drinking dyscontrol and other alcohol related milestones

Milestones	Drinking Dyscontrol		
	Daily Drinking	Day time Drinking	Morning Drinking
Social			
Lost job	0.77**	0.87**	0.75**
Drunken brawls	0.67**	0.81**	0.64**
Borrowed Money	0.73**	0.75**	0.72**
Absenteeism	0.65**	0.80**	0.75**
Accident	0.55**	0.72**	0.63**
Wife left for 1 Month	0.87**	0.79*	0.79*

Police Contact	0.93**	0.68*	0.55*
Physical			
Blackouts	0.73**	0.75**	0.81**
Morning Shakes	0.74**	0.83**	0.85**
Memory Lapse	0.67**	0.80**	0.84**
Hospitalization	0.73**	0.77**	0.75**
Delirium tremens	0.75**	0.90**	0.94**

\*P<0.01; \*\*P<0.001

**Table 3:** Comparison of rank order and mean age onset for specified milestones across three studies

Milestones	Rank Order			Mean Age(Years)	
	P	S	J	P	S
Lost, Job (P),Fired (S)	9	8	4	32.6	34.6
Drinking day time (P) Before noon (S)	1.5	1	-	25.8	29.7
Stopped for 1 month (P),Abstained to control (S)	1.5	-	3	25.8	-
Police contact (P) Public intoxication arrest (S).	3.5	2	-	28.1	30.4
Jailed (S)	-	3	-	-	30.6
Driving arrest(S)	-	7	-	-	33.5
Accident (P), Auto accident (S)	6	5	-	30	32
Morning drinking (P) Used eye openers(J)	3.5	7	7	28.1	-
Blackouts (P,S,J)	8	4	1	31.6	31.5
Frequent blackouts (J)	-	-	2	-	-
Morning shakes (P,S),shakes (J)	7	6	9	31.4	32.8
Sex problem (P), Sex drive decreased (J)	5	-	6	28.9	-
Delirium Tremens (P),Hallucination (S)	11	9	-	35.5	36.7
Alcoholic psychosis (J)	-	-	8	-	-
Hospitalization (P,S,J)	12	11	5	37.6	40.8
Convulsions	10	10	-	35	40

P=Present study, S= Schuckit et. al (1993)<sup>14</sup>; J=Jellinek et. Al (1946)<sup>15</sup>

## Discussion

Even though the bulk of evidence favours the existence of a sequential pattern to progression of alcoholism, the research has often held as either party or fully invalidates the symptoms sequencing, especially as given by Jellinek et al.<sup>15</sup> This diversity of finding can be attributed to a large extent of methodological and sampling differences. The earlier research had variables that used some or all of Jellinek's symptoms and/or other symptoms chosen by different researchers. The progression sequencing was either based on recall of age at onset of some symptoms (which, in turn, influenced the reporting of other symptoms) or by rank ordering of symptoms independent of age at onset. The subjects were taken from alcoholic anonymous programmes, inpatients, out-patients, de-addiction clinics, post-treatment groups or through newspaper advertisements.

Since the present study was conceived only as an exploratory work, we decided to keep the symptom list short and tried to include more of symptoms which could be easily identified and recalled by the subjects as well as the family members. Thus, our list had 12 milestones which had similarity with 11 and 9 symptoms listed by Schukit et al<sup>14</sup> (1993) and Jellinek et al<sup>15</sup> (1946) respectively (Table 4). In view of the availability of the family member to cross-check the patient's efforts and chart out the symptoms, we opted for age at onset, rather than rank ordering for symptom

sequencing to rule out the effects of intoxication, withdrawal, medication etc. The assessment was done at end of the detoxification programme. Assessment was carried out when the subjects were drug-free and after ruling out conditions that could cause memory impairment.

In terms of the frequency of milestones, our subjects were similar to those of Schukit et al<sup>14</sup> (1993) for physiological milestone like day time/morning drinking, accident, blackouts, morning shakes, convulsions and job loss.

The sequencing of symptoms by Jellinek<sup>15</sup> (1946) had given four phases; pre-alcoholic, prodromas, crucial and chronic. The last three phases were heralded by the onset of three specific symptoms: blackout, loss of control and binges of prolonged intoxication. Our list of milestones also produced three phases: early, middle and late. The early phase started with the first drink, went on through weekly drinking and ended at the use of ¼ bottle of spirit a day. The middle phase began with daily drinking went through "social" complications and ended with the use of one bottle of spirit/day. The late phase was heralded by morning drinking extended through various physical complications and ended with convulsions. These phases and the phases given by Jellinek (1964) do not match e.g. Jellinek reported blackout to be the first symptom of prodromal phase. We found blackout to be an early symptom of the late phase.

The differences may be attributed to the difference in the symptoms lists and/or the sample subjects.

This study took three drinking dyscontrol milestones, namely, daily, day time and morning drinking into consideration. Various social and physical milestones taken into consideration were loss of job, drunken brawls, tendency to borrow money for drinks, blackout, absenteeism at work, morning shakes, memory lapses and hospitalization. The association between the age of onset of drinking and various social and physical milestones was highly significant ( $P < 0.001$ ) between all these three milestones and loss of job, drunken brawls, tendency to borrow money for drinks, blackout, absenteeism at work, morning shakes, memory lapses and hospitalization. Correlation between delirium tremens and day time morning drinking was significant ( $P < 0.001$ ) as well as between delirium tremens and daily drinking ( $P < 0.01$ ).

In a study carried out by Varma et al.,<sup>16</sup> the early-onset alcoholics (those with alcohol dependence developed at the age of 25 years or less) were younger, had a greater proportion of first-degree relatives with dependence on alcohol or any other psychoactive substances, and they had experienced a greater number of alcohol-related problems in the previous one year. They tend to be higher sensation seekers and displayed violence, aggression and general disinhibition while drinking. A study conducted among Indian population found that the age of onset of alcohol was 18 years in a hospital-based population and the age at which alcohol dependence started was 27 years. The first criteria of alcohol dependence was developed in these subjects after six years of alcohol use and only four years later they developed the dependence syndrome according to ICD-10.<sup>17</sup>

## Conclusion

Correlation between the age of onset of three drinking dyscontrol milestones and certain social and physical milestones was highly significant. Correlation between all the three drinking dyscontrol milestones loss of job, absenteeism at work place, drunken brawls, tendency of borrowing money from others for drinks, blackout, memory lapses, morning shakes, and hospitalization were found significant.

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## Conflict of interest

None.

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