



## Psychiatric Comorbidity in Alcohol Dependent Outpatients in Tertiary Care Centre

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### Abstract

Alcohol dependence is rising in India, perhaps due to newer and greater stresses related to rapid changes in life-styles. This cross-sectional study was designed to find prevalence of psychiatric co-morbidities in outpatients with alcohol dependence syndrome (ADS) and to analyze relationship between presence of psychiatric morbidity with socio demographic and illness related factors. Data was collected from 100 consecutive outpatients with ADS using structured socio-demographic Performa and semi-structured pre-validated Alcohol intake datasheet. ADS and psychiatric co-morbidities were diagnosed by International Classification of Diseases Diagnostic criteria for research- Tenth Revision. (ICD-10 DCR) Prevalence of psychiatric co-morbidity was 56%. The most common psychiatric disorder was depressive disorder (39%). 42.9% of co-morbid group were unemployed. 80.4% of co-morbid group had family history of alcohol dependence. 41% in co-morbidity group preferred drinking alone and cited coping with stress as main reason for first drink. Major maintaining factor for alcohol dependence in co-morbidity group was to relieve negative mood (46.4%) while it was to relieve craving (56.8%) in non co-morbidity group. All alcohol dependent patients must be evaluated for co-morbid psychiatric problems. Early identification of co-morbid psychiatric disorders and incorporation of relevant interventions may reduce the morbidity, mortality and relapse in this population.

**Key Words:** Alcohol Dependence Syndrome, Psychiatric Co Morbidity.

### Introduction

Mental disorders are common and pose significant burden on health of developing nations. <sup>(1)</sup> Co-morbidity denote those cases in which a 'distinct additional clinical entity' has existed or may occur during the clinical course of a patient having an index disease. <sup>(2)</sup> Co-morbidity is often associated

with poor treatment outcome, severe illness course and high service utilization. Professionals working with co-morbid patients face unique and challenging dilemmas about how to provide the best treatment to address both conditions. <sup>(3)</sup> Psychiatric co-morbidity is defined as co-occurrence of two psychiatric disorders in any

combinations in same person. They may occur simultaneously or sequentially.<sup>(2)</sup>

While epidemiological research has provided us with figures for national-level prevalence of alcohol use (21.4 %), it would be prudent to recognize that there are regional differences in prevalence and patterns. The production, availability, consumption and drinking patterns of alcohol have all undergone phenomenal changes in India and have been influenced by the combined effects of globalization, market forces, changing government policies, media promotion and changing values of Indian society. With changing concepts, it is difficult to translate older studies into newer situations.<sup>(4)</sup> Age of initiation and amount of alcohol intake were significantly associated with positive family history of alcoholism in a de-addiction centre in West Bengal.<sup>(5)</sup>

Kerala has the highest per capita consumption of alcohol- nearly 3 times the national rate.<sup>(6)</sup> Average consumption of alcohol was 3 drinks per day in a study conducted by Indian Council of Medical Research.<sup>(7)</sup> Such severe alcohol dependence will be associated with high prevalence of psychiatric disorders also. In Kerala, recent prevalence of psychiatric co-morbidity among alcohol dependent inpatients in tertiary care centre was 14%<sup>(8)</sup> and 66.59% in another de-addiction clinic.<sup>(9)</sup> DSM-IV reminds clinicians that such mood, anxiety or psychotic symptoms that are documented before severe life problems from alcohol or that remain beyond 4 weeks of total abstinence should be carefully evaluated as possible indicators of true co-morbidity with occurrence of two or more independent psychiatric syndromes.<sup>(10)</sup> Alcohol dependent patients often report that they drink to relieve dysphoric mood, which has been termed "self-medication." This hypothesis embodies a view of alcoholism in which psychiatric symptoms are primary, with drinking occurring in response to those symptoms.<sup>(3)</sup> Alcohol induced psychiatric disorders are also not uncommon in this population.

This study attempts to assess the psychiatric co-morbidity among alcohol dependent outpatients attending a state medical college psychiatric service and also focuses on socio demographic and illness related particulars of ADS patients with or without psychiatric co-morbidity.

### Aims & Objectives

1. To measure the prevalence of psychiatric co-morbidity in patients with alcohol dependence syndrome consulting outpatient department of a state medical college hospital.
2. To analyze the relationship of socio-demographic characteristics and illness related variables of alcohol dependence syndrome in patients with and without psychiatric co-morbidity.

### Materials & Methods

100 consecutive outpatients of either gender aged between 18-65 years diagnosed with alcohol dependence syndrome as per ICD-10 Diagnostic criteria for research<sup>(11)</sup> were approached. Those patients who had at least one month of abstinence and who had given informed consent were included in the study period of 6 months. Patients with acute alcohol intoxication and withdrawal symptoms, organic brain syndrome, severe physical problems were excluded. All patients were under the management of a consultant psychiatrist. Socio-demographic details, past and family history of Alcohol Dependence Syndrome and psychiatric disorders were recorded. Detailed history and mental state examination was done for all patients to diagnose psychiatric co-morbidities as per ICD-10 DCR. Illness related information such as age at onset of alcohol use, initiating factors, maintaining factors, pattern of alcohol use, presence and type of psychiatric co-morbidity were assessed with alcohol intake datasheet prepared by the investigator. Face-to-face interview rather than self-administered format was used to enhance cultural, language and literacy sensitivity. The draft schedule was given to 5 experts in the field for face validation. Based on

their suggestions and comments, final schedule was prepared. Treatment was offered for all unmet mental health needs identified in the subjects during study.

Data collected was entered in and later analyzed using the computer program, Statistical Packages for Social Sciences (SPSS) Version 13. Descriptive statistical tools like frequency, percentage, mean and standard deviation were used. Categorical variables were analyzed using Chi-square or Fisher's exact test and continuous variables were analyzed using student's t test. A p value < 0.05 was considered significant.

## Results

**Overall Patient characteristics:** The study group comprised of 100 patients whose age ranged from 22 to 60 years, with a mean of 41.38 years and a standard deviation of 9.45 years. Majority (98%) of the sample were males. Only 2 females were there in the study group who were Hindus in the age group of 41-50 years. Hindus (74%) dominated the sample followed by Christians (21%). Muslims constituted only 5% of the sample. (Figure1). Seventy two (72%) had primary education and twenty eight (28%) had education above primary level. (Table 1)

**Prevalence of Psychiatric co-morbidity:** 56 % had psychiatric co-morbidity. Depressive disorder constituted 39% of the psychiatric co-morbidity. Next major co-morbid diagnosis was schizophrenia (27%). Bipolar affective disorder (13%) constituted third largest group. Other diagnoses were delusional disorder, adjustment disorder and dissocial personality disorder (7% each). (Figure 2) 79% of alcohol dependent patients had co-morbid nicotine dependence.

**Factors Associated with Psychiatric Co-morbidity:** Socio-demographic characteristics of the co-morbid group were compared with the non co-morbid group in Table 1. There was no significant association between presence of co-morbidity with age group, marital status, educational status and domicile. Higher unemployment rates (71%) were observed in ADS patients with co-morbidity when compared to

those without co-morbidity (48%). Association between employment status and presence of co-morbidity was found to be significant (using chi-square test of significance,  $p < 0.05$ ). Among those who belonged to nuclear type of family, 70% had co-morbidity compared to 47% among those who belonged to joint family. Association between type of family and presence of co-morbidity was also found to be significant (using chi-square test of significance  $< 0.05$ )

Minimum age of initiation of alcohol was 21 years and the maximum age was 51 years with mean of 26.56 years and a standard deviation of 5.78 years. Majority (37%) initiated alcohol in age group of 25-29 years. Difference between mean ages as well as mean age of initiation of drinking in patients with and without psychiatric co-morbidity was not statistically significant (using t-test for difference between two means). Initiation of first drink (55%) was with peers and main reasons for initiation was due to peer modeling (37%) or experimentation (32%). 55% of patients first tried alcohol with the expectation of happiness, while 26% tried it for getting good sleep. Table 2 compares initiating factors of alcohol dependence between co-morbid and non co-morbid groups. There was significant association between presence of psychiatric co-morbidity and main reason for first drink, 90% of those who cited stress as main reason for first drink had co-morbidity. (Using chi-square test of significance  $< 0.001$ ) This relation was statistically significant. ( $p < 0.001$ , Chi square test)

Most common maintaining factors for alcohol dependence in this sample were craving (44%), negative mood (30%) and peer pressure (26%). Table 3 shows the comparison of maintaining factors between the co-morbid and non co-morbid groups. Among those who cited negative mood as the maintaining factor, 87% had co-morbidity. Also, 72% of those who did not have company while drinking were having co-morbidities. Among those who had social sanctioning for alcohol intake, 68% were having co-morbidities. All the above factors were found to have a

significant association with co-morbidity (using chi-square test of significance < 0.05).

Other relevant factors were compared between co-morbid group and non co-morbid group in Table 4. Among those who did not have any abstinence in the past, 88% had co-morbid psychiatric disorders. Only 40% of the early morning drinkers

had co-morbid conditions whereas 65% of those who did not have delirium tremens had co-morbidities. Of those who had family history of ADS, 63 % were co-morbid. There was significant association between the relevant factors and co-morbid condition (using chi-square test of significance, p< 0.05).

**Table: 1** Comparison of Socio- demographic data among alcohol dependent patients with and without psychiatric co morbidity

Items		With co- morbidity N=56		Without co- morbidity N=44		Statistical Significance
		n	%	n	%	
Age group	21 – 30 years	09	16.1	02	4.5	NS
	31 – 40 years	20	35.7	17	38.6	
	41 – 50 years	19	33.9	21	47.7	
	51 – 60 years	08	14.3	04	9.1	
Marital Status	Single	13	23.2	09	20.5	NS
	Married	35	62.5	30	68.2	
	Separated	08	14.3	05	11.4	
Education	Primary	37	66.1	35	79.5	NS
	Above primary	19	33.9	09	20.5	
Domicile	Urban	18	32.1	08	18.2	NS
	Rural	38	67.9	36	81.8	
Occupation	Unemployed	24	42.9	10	22.7	p <0.05
	Employed	32	57.1	34	77.3	
Type of family	Nuclear	28	50.0	12	27.3	p<0.05
	Joint	28	50.0	32	72.7	

NS= not significant (the level of significance was calculated by Chi square test which was considered statistically significant when p value <0.05).

**Table: 2** Comparison of Initiating Factors of Alcohol Dependence among Patients with and without psychiatric co morbidity

Initiating factors		With the co- morbidity N=56		Without the co- morbidity N=44		Significance
		N	%	N	%	
Initiation by	Self	23	41.1	09	20.5	NS
	Peers	28	50.0	27	60.4	
	Relatives	05	8.9	08	18.2	
Situation of the initiation	Alone	12	21.4	06	13.6	NS
	With relatives	15	26.8	14	31.8	
	With friends	29	51.8	24	54.5	
Reason for first drink	Experimentation	17	30.4	15	34.1	p <0.001
	Peer modeling	12	21.4	25	56.8	
	False myths about alcohol	8	14.3	2	4.5	
	Cope with stress	19	33.9	2	4.5	
Expected effects of the drinking	Sleepiness	19	33.9	7	15.9	NS
	Talkativeness	7	12.5	12	27.3	
	Happiness	30	53.6	25	56.8	

NS = Non significant. The level of significance was calculated by Chi square test which was considered statistically significant when p value was less than 0.05.

**Table: 3** Statistically significant maintaining factors of alcohol dependence among patients with and without psychiatric co morbidity

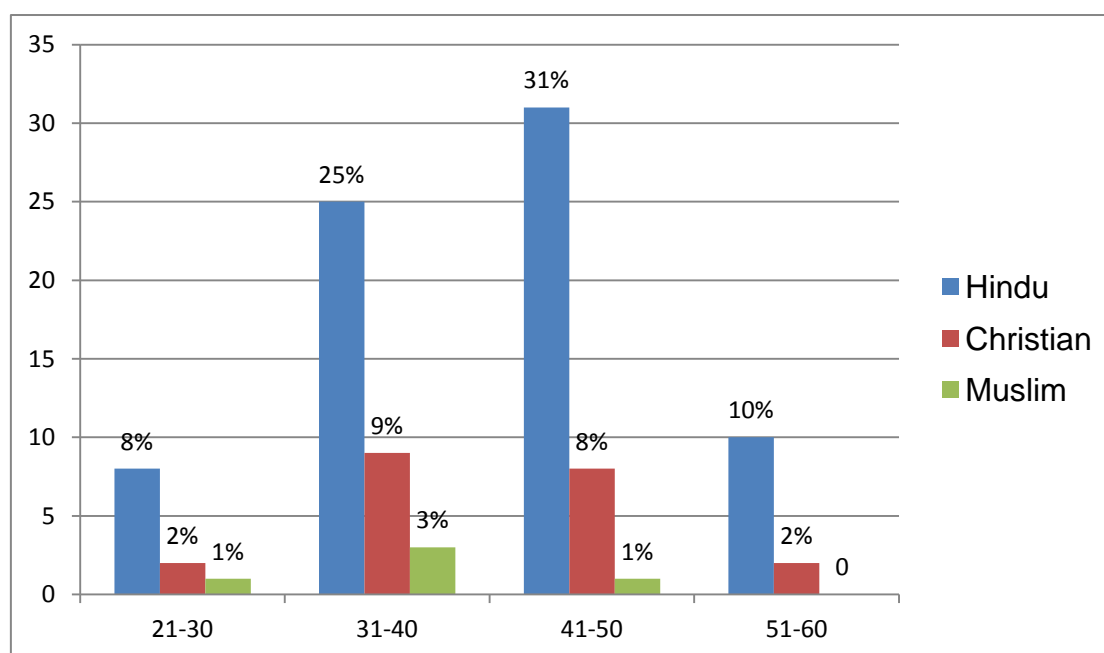
Maintaining Factors		With co-morbidity N=56		Without comorbidity N=44		Significance
		n	%	n	%	
Reasons	Craving	19	33.9	25	56.8	p<0.001
	Peer pressure	11	19.6	15	34.1	
	Negative mood	26	46.4	4	9.1	
Company while drinking	No	23	41.1	9	20.5	p<0.05
	Yes	33	58.9	35	79.5	
Social sanctioning	Yes	34	60.7	16	36.4	p<0.05
	No	22	39.3	28	63.6	

The test of significance was the Chi square test which was statistically significant when the p value was less than 0.05.

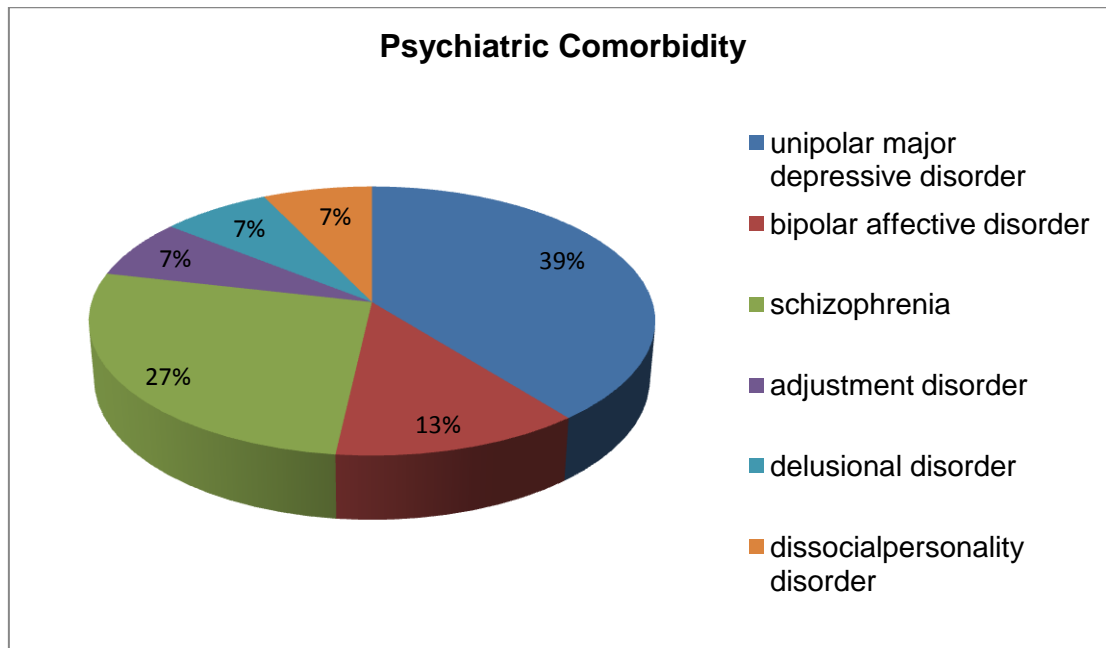
**Table: 4** Other statistically significant factors of alcohol dependence among patients with and without psychiatric co morbidity

Factors		With the co-morbidity N=56		Without the co-morbidity N=44		Statistical significance
		n	%	n	%	
Abstinence	Yes	41	73.2	42	95.5	p<0.01
	No	15	26.8	2	4.5	
Early morning drinking	Yes	23	41.1	35	79.5	p<0.001
	No	33	58.9	9	20.5	
Delirium tremens	Yes	15	26.8	22	50.0	p<0.05
	No	41	73.2	22	50.0	
Family history of ADS	Yes	45	80.4	26	59.1	p<0.05
	No	11	19.6	18	40.9	

NS-Non significant (chi square test was considered statistically significant if p value was less than 0.05)



**Figure: 1** Age group and religion wise distribution



**Figure: 2.** Psychiatric co morbidity in the sample

## DISCUSSION

In our study, majority of patients were in the age group of 31-50 years. Patients with alcohol dependence may take an average of 10 years to develop various medical, neurological or psychiatric complications after the initiation of consumption during early twenties. <sup>(3)</sup> Other Indian studies also reported similar observations in their sample. <sup>(5, 8, 12)</sup>

Females constituted only 2% of the sample in this study similar to another Indian study. <sup>(5)</sup> A south Indian study concluded that availability of Indian made foreign liquor and living in a village which brewed illicit alcohol were major risk factors for hazardous use in women <sup>(13)</sup>

Both female subjects in our study initiated drinking with their relatives due to false myths about alcohol. Using Indian made foreign liquor and living in a village which brewed illicit alcohol were risk factors for hazardous use in another recent study conducted in rural southern India. <sup>(13)</sup> The cultural influence in initiating alcohol abuse is an area to be studied in women of specific caste or religious groups.

Hindus (74%) dominated the sample followed by Christians (21%) which was similar to another study. <sup>(14)</sup> This can be attributed to social sanctioning associated with certain religious

customs prevalent in this area, certain occupations and other reasons for cultural and social sanctioning. In many tribal societies, this may take place relatively early, but typically in the context of a traditional ritual (as opposed to drinking for pleasure, as in developed countries). Low prevalence in Muslims (5%) can be explained as a result of the religious prohibition. Jammu and Kashmir records the lowest alcohol consumption. Experts attribute this fact to religious factors. <sup>(1)</sup>

A low educational status was found among 71% of the individuals in this study. Another Indian study also reported maximum alcohol dependence (55.9%) in illiterates. <sup>(15)</sup> Education was protective against development of alcohol dependence in another Indian study. <sup>(12)</sup> A significant proportion of patients in the co-morbid subgroup were unemployed. This may be due to higher severity of alcohol consumption, morbidity and occupational dysfunction in this subgroup of patients. Alcohol dependent patient living in a joint family had fewer co morbidities in this sample. This was similar to other Indian studies. <sup>(12, 16)</sup> Poor social support has been found to be etiologically linked to psychiatric co-morbidity <sup>(3)</sup> However, psychiatric morbidity itself may reduce the level of the available support. This study being

cross sectional in nature cannot comment on the cause and the effect relationship.

Majority (63%) of those with family history of alcohol dependence were having co-morbid psychiatric disorder similar to another Indian study.<sup>(5)</sup> Psychiatric disorder can co-exist with alcoholism either by chance or because a family history of alcoholism increases risk of its occurrence in psychiatrically ill patients. Some evidence is available to support the possibility of familial transmission of both bipolar disorder and alcoholism.<sup>(17)</sup> Detection of family history can be in many aspects useful for establishing clinical subtypes, predicting specific (psychiatric, social or medical) complications, or helping to find the most relevant treatment modality.<sup>(18)</sup>

Initiation of first drink was mostly with peers (55%). Alcohol consumption among men often takes the form of binge drinking, typically outside home, with other men, usually with a goal to get drunk. Thus excessive drinking celebrates male courage, maturity and ability to take risks.<sup>(19)</sup> Main reasons for initiation were due to peer modeling (37%), experimentation (32%) or to cope with stress. First drink was predominantly tried with expectation of happiness (55%) while 27% tried for getting good sleep. Co-morbid group cited coping with stress as main reason for first drink. This relation was statistically significant. In many countries, drinking and intoxication may have important social meanings, such as coping with stressful situations.<sup>(1)</sup>

Most common maintaining factors for alcohol dependence in this sample were craving (44%), peer pressure (26%) and negative mood (30%). They show statistically significant differences between 2 groups. Among those who used alcohol to relieve negative mood, majority (87%) were co-morbid. Alcohol use may be an attempt to self-regulate symptoms of distress, such as anxiety, fear or feelings of depression (negative affect pathway). Drinking in order to cope with negative emotions is related to high levels of neuroticism and sensitivity to anxiety, low level of agreeableness and a negative self-image.<sup>(20)</sup>

Among those who continued alcohol use to relieve craving, majority (57%) belonged to non co-morbid group. Also, majority (88%) of those with non abstinence were co-morbid. Craving a common determinant of relapse has been shown to reduce with increase in length of period of abstinence.<sup>(4, 14)</sup> Precipitants of relapse (dysfunction, stress and life events) differ among alcohol dependent patients.<sup>(4)</sup>

Among those who preferred drinking alone, majority (72%) had co morbid psychiatric disorders. In another Indian study, hazardous drinkers tended to drink alone in bars and preferred non-commercial alcoholic beverages, which are cheaper and have relatively high alcohol concentration. Hazardous drinkers do not only consume large amounts of alcohol, but also do so in high-risk patterns, such as drinking alone and bingeing. Beverage choice was related to socioeconomic status, with cost and ease of access being key determinants.<sup>(19)</sup>

Majority (60%) of those with early morning drinking were significantly non co-morbid. Public measures like the restriction of advertising and promotion of alcohol, timings of alcohol sale and location of outlets might help in the long run to prevent as well as minimize this problem.<sup>(13)</sup>

A large proportion of subjects of the present study (56%) had co morbid psychiatric diagnosis. A great variation in the co-morbidity with alcohol dependence (3-98%) has been reported.<sup>(4)</sup> This is due to wide variation in study methods used, including how alcohol use and various disorders are defined, as well as in sampling strategies. These variations make comparisons difficult. But prevalence of psychiatric co morbidity has been increasing recently.<sup>(12, 21, 22)</sup> This may reflect actual increase or more reporting due to recent trend of increased social sanctioning especially in females and associated with binge drinking during social customs. This is particularly relevant in Kerala.

In this study, depressive disorder constituted the majority of the psychiatric co- morbidity (39%). Previous Indian studies have also reported similar prevalence of depressive disorders in alcohol

dependent sample. <sup>(16, 23)</sup> Recent Indian studies also show increasing trend of co morbid depression. <sup>(12, 21, 22)</sup> Major limitations in existing work are use of small clinical samples and cross-sectional nature of studies. <sup>(4, 24)</sup> The former was rectified but the latter persist in our study also.

Next major co morbid diagnosis was schizophrenia (27%). These findings support an earlier study. <sup>(21)</sup> But as reviewed by Murthy P et al in 2010, <sup>(4)</sup> other Indian studies suggest that substance use co morbidity in schizophrenia is low, and is an important contributor to better outcome in schizophrenia in developing countries like India. <sup>(25)</sup>

Bipolar affective disorder (13%) constituted the third largest group. Other Indian studies have also revealed such prevalence. <sup>(12, 16, 21)</sup> Patients with bipolar disorder may drink to alleviate both mania and depressive symptoms, though evidence indicates that the greatest risk for heavy drinking occurs during the manic phase of their illness. Diagnosing bipolar disorder in alcohol dependent patients can be particularly challenging. Several factors, such as under reporting of symptoms (particularly symptoms of mania), complex effects of alcohol on mood states, and common features shared by both illnesses (e.g., excessive involvement in pleasurable activities with high potential for painful consequences) reduce diagnostic accuracy. <sup>(17)</sup>

Other diagnoses were delusional disorder, adjustment disorder and dissociative personality disorder (7% each). The number of cases of individual psychiatric disorders in our study was insufficient for further statistical analysis.

Prevalence of personality disorders has been uniformly reported to be higher in alcohol dependence <sup>(20)</sup>. Unfortunately; studies of clinical populations have shown a striking divergence regarding the prevalence of personality disorders (24-78%) in alcohol dependent patients. Similarly, types of personality disorders, including their combinations, found to be related to alcoholism are very heterogeneous. The disparity may be due to the difference in the study groups, the educational status and the cultural differences

between the different study groups. <sup>(20)</sup> Clinicians should work with patients to differentiate between symptoms that are attributable to alcohol dependence and symptoms that are attributable to dissociative personality disorder. It is likely that Axis – II co morbidity predisposes person to other types of psychiatric disorders. However a small sample does not permit any generalization.

Anxiety disorders do not seem to occur at much higher rates among alcohol dependent patients in this study similar to other studies. <sup>(9, 12)</sup> This might be because of our use of unstructured interview. A large proportion of subjects of present study had multiple co morbid diagnosis. Similar figures were also reported in other studies. <sup>(14)</sup> This further illustrates the heterogeneity of patients with alcohol dependence and implies that clinician should not stop after making one or two diagnoses.

A complex interaction of etiological factor determines the outcome of any disorder. Patients at a tertiary centre are likely to have more severe presentation of the disorder. But severity of alcohol dependence and co-morbid psychiatric disorders were not measured in this study which limits the assertion of any such associations. Together, these findings suggest that patients diagnosed with alcohol use disorder should undergo thorough psychiatric assessment for co-morbid psychiatric disorders. Conversely, patients seen in psychiatric settings should be routinely evaluated for the presence of alcohol use disorder. Presence of co morbid psychiatric disorders in alcohol dependent patients has clinical and prognostic implications.

**Limitations of this study:** This was a cross sectional study from a hospital set up which limits the generalizability of the observations. Further the current study did not use any structured instruments for assessing patients. A large scale community based study in the same area with validated instruments and questionnaires will give an actual picture of the problem in this community.

**Strengths of this study:** Cross sectional evaluation of 100 patients with alcohol



dependence was done. This was a decent number for any time limited cross sectional research. The study has helped to understand the importance of evaluation of co- morbid psychiatric diagnosis in patients with alcohol dependence.

**Conclusion:** Our study highlights the fact that psychiatric co-morbidities are highly prevalent in alcohol dependence. High co-morbidity of depressive disorders and other major psychiatric disorders among patients with ADS adds to the dysfunction, morbidity and mortality among these patients. These findings substantiate the need for the development of the specialized dual diagnoses programs treating both index and co morbid conditions and suggests that additional specialization may be required to address the diagnostic group differences in the characteristics of the co morbid alcohol disorder. Public measures like discouraging initiation to drink particularly in individuals at high risk (*e.g.* family history of alcoholism), might help in the long run to prevent as well as minimize this problem.

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**Conflict of Interest:** None declared.

**Ethical Approval:** The study was approved by the institutional Ethics committee.

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