

## ORIGINAL ARTICLES ON ALCOHOL & SUBSTANCE USE :

### Predictors of outcome following alcohol deaddiction treatment : a prospective longitudinal study for one year

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#### ABSTRACT

The factors influencing the short-term outcome of alcohol dependence patients psychiatric set up were studied prospectively in an Indian population. Consecutive 60 patients with alcohol dependence syndrome according to the ICD 10 criteria, were studied. Positive outcome was noted in 55%, negative in 35%; and 10% were lost to follow up at the end of one year. There was no difference between the groups on educational level, marital status, economic status, religion, social support, associated physical or psychiatric diagnoses, type of treatment for deaddiction, age of regular drinking, days of previous abstinence and inpatient treatment days. However the negative outcome group were younger, and their average age for problem drinking was significantly less than the other group. They achieved many mile-stones of drinking career like onset of day drinking, development of dependence, diagnosis of dependence earlier. The negative outcome group also had higher psychosocial problem index, family history of alcoholism, more follow-up days using the mental health services. They did not come for follow up as quickly as the abstinent group after initiation of pathological drinking. The study suggested many clearly identifiable variables, which may distinguish prospectively patients with probable positive and negative outcome one year after the alcohol deaddiction treatment

**Key words:** Alcohol dependence, predictors, outcome

#### INTRODUCTION

Outcome of alcohol dependence following treatment vary depending upon various factors like patient characteristics, disease severity (Yates et al 1994), treatment offered, treatment setting (Mundle et al., 2001), treatment adherence (Haver et al., 2001), duration of treatment (Long et al., 1998), psychiatric comorbidity, associated physical disorder (Yokoyama et al., 1994), social support, living circumstances (Shaw et al., 1998) etc.

A considerable proportion of alcoholic patients remain abstinent after long term follow up. Reported figures of abstinence are 59% at 6 months (Mundle et al 2001); 55.6% (Long et al., 1998), 58% (Bendita et

al., 1979) and 44.3% (Neto et al., 2001) at one year; 53% at 18 months (Mundle et al., 2001); 67% after 2 years in female patients (Haver et al., 2001); 39% at 36 months (Mundle et al., 2001); and 25% at 8 years (Vaillant et al., 1983). These figures suggest variability of response rates in different sites and period and they also suggest that a significant proportion go back to pathological drinking.

Positive outcome in deaddiction has been associated with various factors like good regular completion of treatment and no prior detoxification or abstinence oriented treatment (Mundle et al 2001); supportive role of family and environment (Bendita et al 1979); premorbid social stability and sustained abstinence (Vaillant et al 1983);

high self-efficiency and ongoing social support since treatment (Noone et al 1999); both directed and natural social support from spouses (Sobell et al., 2000); close monitoring (Morse et al., 1984); functional level and psychological functioning after treatment (Maisto et al., 2002); absence of a family history of alcoholism (Craig, 1997) and persons who elect to enter formal treatment or AA relatively soon (Timko, 1999). Social support as given by AA such as 24-hour availability, role modeling, and experientially based advice (Kaskutas et al 2002) and attending meetings of self-help groups (Lloyd 2002) were also found to be associated with favourable outcome. Most significant association with a favourable outcome was found to be adherence to the therapeutic programme over the course of that year (Neto et al., 2001).

Negative outcome has been associated with unmarried alcoholics (Greenfield et al 2002), patients without a partner (Mundle et al 2001), less than a college education, not being employed for full time (Greenfield et al 2002); self-reported absence of a mainstream Christian religious preference (Craig 1997); negative coping, high levels of stress in the month prior to follow up (Noone et al 1999); lack of coping skills and belief in the disease model of alcoholism. (Miller et al 1996) early personality difficulties and unsatisfactory schooling experiences (Doyle et al., 1994). History of sexual abuse was associated with shorter times to first drink and relapse (Greenfield et al 2002) but not the history of physical abuse.

Comorbidity especially major depression, antisocial personality, or drug abuse in men and antisocial personality and drug abuse in women (Rounsaville et al., 1987); comorbid depression or other psychiatric disorder (Greenfield et al., 2002) and secondary alcoholism as in marked neurosis or psychosis (Bendita et al., 1979) were associated with poor outcome. Patients with antisocial traits showed as much improvement as non-antisocial counterparts but they remained associated with more drug problems at follow up (Verheul et al., 1999). Combination of Axis I and II psychopathology was the best predictor of a return to substance use at one year post-treatment (Pertinatti et al 1999).

We intended to study prospectively the

factors those influenced the one-year outcome of alcohol dependence patients treated in a general hospital psychiatric set up in an Indian population.

**MATERIAL AND METHOD**

Consecutive 60 male patients (mean age of 42.6 with range 21-59) fulfilling ICD 10 (WHO 1992) criteria for alcohol dependence syndrome, who took inpatient treatment in Kasturba Medical College Hospital were taken up for the study. Informed consent was taken. Those who used multiple drugs other than tobacco were excluded.

Semistructured interview schedule were used for recording sociodemographic data. Age at regular drinking, age of onset of day drinking, age of probable dependence, age at diagnosis of dependence and previous days of abstinence were noted. Family history of alcohol dependence was studied by Family History-Research Diagnostic Criteria (Andreason et al, 1977). Alcohol related psychosocial problems (interpersonal, occupational, legal and sexual) were rated according to Quantitative Inventory of Alcohol Disorder (Stinnett and Schechter, 1983). In order to indicate the severity the total score obtained for an individual was further graded as absent (0), mild (1-4), moderate (5-8) and severe (9-12). Social support was rated on a four-point scale (very poor, poor, good and very good) based on economic status, sources of instrumental and emotional support and number of persons with close relationship with the patient. Psychiatric diagnoses were made according to ICD-10 Diagnostic Criteria for Research criteria (WHO 1992). Physical diagnoses were recorded after specific and relevant investigations and examinations in different departments. The treatment offered during the inpatient stay included benzodiazepines for detoxification, and in addition vitamins, disulfiram, psycho-education, aversion therapy and group therapy. Prior to discharge all the patients along with the relatives were instructed to visit the out patient clinic for continued counselling and progress monitoring. At follow up, clinical variables were reevaluated, days of pathological drinking before coming for help were noted, along with total number

**TABLE I.** Comparison of sociodemographic and social support between the 'positive' and 'negative' outcome groups

Variables		Positive outcome (n=33)	Negative outcome (n=21)	Statistics	p
Mean age (SD)		44.5 (7.5)	39.3 (9.0)	t=2.19	0.035
Religion (%)	Hindu	69.7	76.2	x=0.26	NS
	other	30.3	23.8		
Education (%)	School	78.8	57.1	2=2.88	NS
	College	21.2	42.9		
Marital status (%)	Married	96.1	90.5	c2=0.15	NS
Income per month (%)	<1000	42.4	47.6	c2=0.14	NS
	1000-4000	57.6	52.4		
Psychosocial problem index (%)	Absent	51.5	23.8	c2=6.8	<.01
	Minimal	42.4	47.6		
	Moderate	6.1	28.6		
Social support (%)	Very good	45.5	33.3	c2=0.92	NS
	Good	45.5	52.4		
	Poor	9.0	14.3		

NS= Not significant

**Table II.** Comparison of the groups by clinical variables

Variables	Positive outcome	Negative outcome	Statistics	p
Family history of alcoholism (%)	51.5	80.9	c2=6.6	0.036
Mean age at regular drinking (SD)	30.8 (8.5)	27.9 (7.8)	t=1.29	0.205
Mean age of onset of day drinking (SD)	38.8 (7.5)	31.0 (8.5)	t=3.43	0.001
Mean age of probable dependence (SD)	40.0 (8.4)	34.0 (8.2)	t=2.8	0.008
Mean age at diagnosis of dependence (SD)	43.6 (8.0)	37.0 (9.3)	t=2.68	0.011
Average age of problem drinking (SD)	38.4 (7.1)	32.5 (7.6)	t=2.88	0.006
Follow up period in years (SD)	1.6 (0.5)	2.3 (1.2)	t=2.5	0.020
Days of pathological drinking before coming for follow up (SD)	0.78 (2.7)	114.7 (122.0)	t=-4.28	0.000
Physical illness other than neurological disorder (%)	33.3	42.9	c2=0.49	NS
Neurological illness (%)	24.2	23.8	c2=0.001	NS
Any physical disorder (%)	51.5	47.6	c2=0.07	NS
Comorbid psychiatric disorders (%)	24.2	38.1	c2=1.18	NS
Treatment with disulfiram (%)	87.9	95.2	c2=0.18	NS
Inpatient treatment days (%)	11.5 (6.0)	11.8 (5.9)	t=-0.17	0.86

of follow up days at the end of study. The outcome was pre-determined to be grouped into three types: complete abstinence, social / occasional / non-pathological drinking and pathological drinking.

All the patients were followed up for at least one year. The follow up was once every month for first three months after discharge and then once every 2 to 3 months. Patients missing appointments were communicated by letters. At the end of one year, complete follow up data were not available for 6 (10.0%) patients, so the outcome of these patients could not be commented. Their data were not included in the calculations for outcome.

## RESULTS

Based on global outcome different groups are considered 28. (46.7%) had complete abstinence, 5 (8.3%) had occasional social drinking which was not pathological and 21 (35.0%) had pathological drinking with more than 50% of days in the follow up period spent in drinking. As the 5 occasional drinking patients resembled mostly to patients of complete abstinence they were grouped together as the positive outcome group. The pathological drinking group was considered as the negative outcome group. The sociodemographic and clinical differences between the groups are presented in table I and II.

Stepwise logistic regression suggested that more number of days of pathological drinking was associated with higher chance of bad outcome ( $b=0.4168$ ,  $SE=0.1355$ ,  $Sig.=0.0021$ ,  $Exp (B)=1.5$ ). Higher age at onset of day time drinking had less chance of being associated with bad prognosis ( $b=-0.1129$ ,  $SE=0.0436$ ,  $Sig.=0.0096$ ,  $Exp (B)=0.8932$ ).

## DISCUSSION

Various sociodemographic and clinical variables were studied prospectively for their prognosticating value one-year after the alcohol deaddiction treatment in a tertiary level of health care centre. The study has a few limitations, which may be highlighted before discussing the results. There was a

sample attrition of around 10%, which was unavoidable considering the prospective nature of the study (Sengupta et al 2001). The lack of information on the outcome of these patients might influence the findings of the study. In addition many factors, which are known to influence the outcome like personality, craving, amount of consumption, etc. were not assessed. In spite of these, the study brings forth many variables that can be easily studied in clinics, which may be relevant in suggesting the outcome.

Around 55% of patients had positive and 35% had negative outcome after one year though both groups had comparable interventional input, in-patient treatment days and regular follow up. This figure is comparable to 55.6% reported by Long et al (1998) and 58% by Bendita et al (1979); and it is little more than 44.3% by Neto et al (2001) at one year in different centers. It may be highlighted that a sizable proportion continues to have pathological drinking after current methods of intervention.

Educational and economical status and religious belongingness did not influence the outcome in the index study in contrast to the reports that less than a college education, not being employed full time (Greenfield et al 2002), and absence of religious preferences were associated with negative outcomes (Craig 1997). These demographic variables are obviously associated with many psychosocial issues that are relevant in prognosticating the outcome and need closer study. Most of our patients were married, though 10% of those with negative outcome were unmarried it was not a significant difference.

Family history of alcoholism suggested greater vulnerability for negative outcome, similar to the report by Craig (1997). In contrast to many studies we did not find medical or psychiatric comorbidity being associated with negative outcome. There has been also reports of better outcome in drinking associated with major depression (Rounsaville et al 1987). Prognosticating value of comorbidity needs more evaluation.

Milestones in drinking career suggested many differentiating points between the two groups. Though mean ages of regular

drinking, previous days of abstinence did not differ, patients with negative outcome were younger when they presented for the psychiatric intervention, had earlier age at onset of day drinking, development of dependence and diagnosis of dependence. Their average age for problem drinking was also significantly less than the other group. These could be related to higher proportion of them having positive family history which have been associated with the negative outcome. Supportive roles of family and society for positive outcome have been reported by Bendita et al (1979), Sobell et al (2000), Noone et al (1999). In this study social support could not differentiate the outcomes, however the severity of psychosocial problems was significantly more associated with the negative outcome.

The treatment methods of using psychoeducation, group therapy, and aversion therapy and in-patient days for treatment were similar to both groups. Though slightly greater proportion of persons with negative outcome were on disulfiram it did not make any difference. However the negative outcome group did not come for follow up as quickly as the patients with positive outcome after initiation of pathological drinking and they remained in follow up for significantly greater number of days needing mental health services.

In conclusion, positive outcome at one year post deaddiction treatment in a hospital can be predicted by lower psychosocial problems, lower or lack of family history of alcoholism, greater average age of problem drinking, greater age at the diagnosis of dependence, and fewer days of pathological drinking before seeking treatment. Future studies may include more variables, which can be clearly identifiable and assessable at the evaluation for treatment and followed up. Awareness of factors that may influence outcome can help in emphasizing areas that need more attention and modifying the intervention strategies to increase the proportion of positive outcome.

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