

## ORIGINAL ARTICLE

## Alcohol Dependence: Analysis of Factors Associated with Retention of Patients in Outpatient Treatment

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**Abstract** — **Aims:** To identify factors associated with retention in treatment of alcohol-dependent individuals and to compare treatment retention between men and women. **Methods:** Analysis of the treatment attendance records and baseline characteristics of 833 men and 218 women who undertook to attend follow-up treatment in an alcoholism treatment centre. **Results:** Retention after 4 weeks of treatment is more likely to occur among those using adjuvant medication (the most frequent of which was disulfiram), those presenting severe alcoholism and those who are older and tend to be frequent drinkers. There was no gender difference regarding treatment retention. **Conclusion:** Such results suggest possibilities for developing specific strategies to reduce the risk of early dropout from treatment.

## INTRODUCTION

Retention of patients in a wide variety of therapeutic settings and modalities for treatment of alcohol abuse and dependence is one of the greatest challenges faced by practitioners working in this area, since dropout rates as high as 52–75% are seen by the fourth session (Baekeland and Lundwall, 1975).

The time spent in treatment is one of the strongest factors associated with positive outcomes in the post-treatment period. Thus, patients who have early exit, failing to complete the steps in the proposed treatment, tend to have an increased risk of readmission (Moos *et al.*, 1995).

Although treatment retention is not an outcome measurement *per se*, the capacity to retain patients in active participation is a sensible measurement related to quality and efficacy of the health care (McLellan *et al.*, 2007), thus becoming one of the goals of treatment programmes.

The present study aims to identify factors associated with retention and to compare treatment retention between genders in the first 12 months of treatment.

## METHODS

This retrospective cross-sectional study was developed in a specialized chemical dependence outpatient unit linked to a federal teaching institution between the years of 2000 and 2006. A total of 1051 patients took part (833 men and 218 women).

The inclusion criteria were: diagnosis of alcohol dependence syndrome according to the International Classification of Diseases<sup>10</sup>, first outpatient treatment at UNIAD between January 2000 and January 2006 and commitment to attending the therapeutic sessions every week. The study was previously submitted to the UNIFESP Research Ethics Committee (process # 1627/05).

*Measurements*

Treatment retention was defined as attendance at the weekly sessions regardless of whether the patient was abstinent.

Treatment dropout was considered after non-justified absences from four consecutive sessions, even after contacts through telephone call or telegram. The patient could resume the treatment at another moment, but he or she would be regarded as not retained for the purpose of this study.

Patients were classed in two groups: those remaining in treatment until the fourth week of treatment (54.2%) and those remaining after this period (45.8%). The following variables were analysed:

- (a) *Socio-demographic aspects:* gender, employment status (employed or unemployed), marital status (single, married, widowed, divorced/separated or cohabitating), education level (complete or incomplete senior high school, complete or incomplete tertiary degree) and age.
- (b) *Data on history of alcohol use:* Drinking pattern and frequency of alcohol consumption in the last month (everyday intake, 5–6 times a week, 3–4 times a week, 1–2 times a week, 2–3 times a month, once a month, less than once a month, and abstinent), severity of alcohol dependence through application of Short Alcohol Dependence Data (SADD; Jorge and Masur, 1985) (mild, moderate and severe), type of beverage preferentially consumed (distilled, fermented or both beverages), beginning of regular alcohol consumption, units of alcohol consumed per week and family history of alcoholism.
- (c) *Therapeutic interventions:* Whether or not an alcohol detoxification programme was needed was assessed during the screening phase through patient's history of previous and current alcohol abuse and presence of signs and symptoms of alcohol withdrawal.

The prescription of benzodiazepine medication, if any, was recorded. Medical evaluation was carried out after detoxification to detect the presence of any psychiatric comorbidity. Previous therapeutic interventions (associated treatments, medical treatment, Alcoholics Anonymous, others, and no treatment) and number of psychiatric hospitalizations were recorded.

Table 1. Final logistic regression model considering treatment retention as variable

Variables	Coefficients	Standard error	P-value	Odds Ratio	Confidence interval for Odds Ratio (95%)	
					Lower limit	Upper limit
Adjuvant medication	1.655	0.148	0.000	5.235	3.919	6.994
SADD	0.443	0.152	0.004	1.557	1.157	2.096
Age	0.023	0.006	0.000	1.023	1.011	1.036
Consumption frequency	0.058	0.029	0.043	1.060	1.002	1.121

Disulfiram was used by 328 patients (270 men and 58 women) and 24 (15 men and 9 women) used naltrexone during the follow-up treatment; none used acamprosate. There were 131 patients (88 men, 43 women) with depression and 21 patients (13 men, 6 women) with associated disorders, who also could have used antidepressants, but no documentation of antidepressant medication was made. Medical staff were responsible for prescribing adjuvant medications, whereas interdisciplinary personnel were involved in instructing and monitoring the patient every week during group or individual sessions. Both patient and caregivers, if present, were instructed about the adverse effects of disulfiram, and they had signed an informed consent form in which they are liable for the consequences if the recommendations are not followed. The daily ingestion of disulfiram was not formally supervised, but in some families this may have occurred.

The use of other psychoactive substances (cannabis, cocaine and tobacco) was recorded, although the sample of patients in the present study had alcohol as the primary substance.

### Statistical analysis

In a first step, a comparative analysis of the groups regarding retention time was performed to look for associations. In the univariate analysis, categorical variables were examined by using Pearson's  $\chi^2$  test while quantitative variables with normal distribution were examined using analysis of variance (ANOVA).

In a second step, a logistic regression was performed to identify factors related to treatment retention. In the initial model, all variables described above that were associated with a statistical significance of  $\leq 20\%$  ( $P \leq 0.20$ ) in the univariate analysis were included. Variables with  $P > 0.05$  were then step wisely eliminated until only statistically significant variables remained in the model. All possible multiplicative interactions were tested.

Finally, survival curves for each gender were constructed by using the Kaplan–Meier's method to analyse gender differences regarding treatment retention. For each patient, the initial period of study corresponded to the first consultation (screening) and the end of study corresponded to the dropout of treatment, that is, after the fourth consecutive non-justified absence.

## RESULTS

Patients who remained in the treatment until the fourth session were on average 41.5 years old (SD 11.0), with average consumption of 136 units of alcohol per week (SD

134.4) and beginning of regular alcohol consumption at 20.5 years old (SD 9.09). Patients who remained in the treatment after the fourth session were on average 43.2 years old (SD 10.4), with average consumption of 142 units of alcohol per week (SD 115.0) and they had begun their alcohol consumption regularly at 19.7 years old (SD 7.27).

There was no statistically significant relationship to marital status ( $P = 0.183$ ), education level ( $P = 0.471$ ), gender ( $P = 0.078$ ), employment status ( $P = 0.062$ ), units of alcohol consumed per week ( $P = 0.161$ ), number of psychiatric hospitalizations ( $P = 0.610$ ), type of beverage ( $P = 0.096$ ), family history of alcoholism ( $P = 0.094$ ) and the use of tobacco ( $P = 0.150$ ), crack/cocaine ( $P = 0.859$ ) and cannabis ( $P = 0.214$ ).

However, a statistically significant relationship was observed in relation to age ( $P = 0.014$ ), severity of alcohol dependence ( $P = 0.002$ ), need for alcohol detoxification ( $P = 0.0000$ ), use of benzodiazepines at detoxification ( $P = 0.000$ ), use of adjuvant medication ( $P = 0.0000$ ), frequency of alcohol consumption ( $P = 0.001$ ), psychiatric comorbidities ( $P = 0.0000$ ) and previous therapy ( $P = 0.000$ ).

The final logistic regression (Table 1) showed that retention of patients after the fourth week of treatment is more likely to occur among those who take adjuvant medication, those with severe alcohol dependence, those drinking more frequently during the week and those who are older.

The survival curve (Fig. 1) by gender showed no difference regarding retention time ( $P = 0.152$ ), with mean value of 8 weeks of treatment (SE = 0.330 and CI = 7.437–8.764 for men; SE = 0.614 and CI = 6.256–8.662 for women).

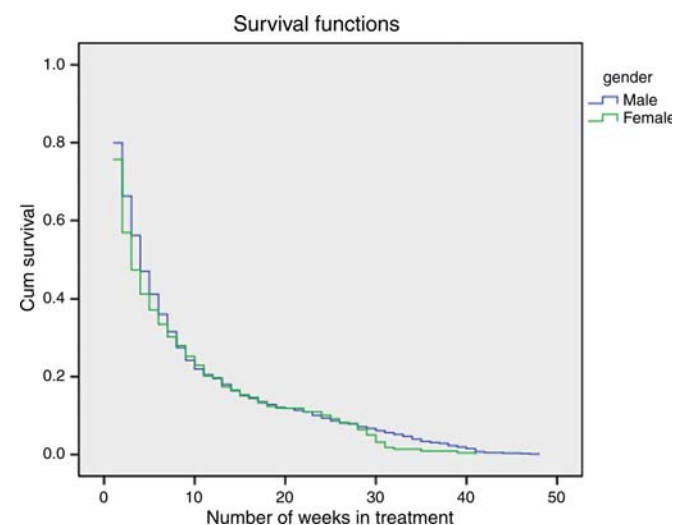


Fig. 1. Survival curve during treatment according to gender.

## DISCUSSION

Treatment retention is affected by a variety of intrinsic and extrinsic factors, some of which have already been identified, whereas others deserve further attention.

We have analysed factors related to retention of alcohol-dependent patients after the fourth session of treatment, and we observed that the use of adjuvant medication, severity of alcohol dependence, age and frequency of alcohol consumption were all associated with a greater patient retention. Gender did not predict retention in treatment.

Alcoholism is a serious public health problem worldwide, but even today its pharmacological therapies are limited. Such medications can prolong the initial period of abstinence, and thus facilitate retention in treatment. In the present study, the majority of patients chose disulfiram and the reasons were the low cost and its immediate support for abstinence, disulfiram being an intervention that quickly interrupts resumption of alcohol consumption. We have previously reported this finding in this sample of patients: those who used disulfiram tended to remain longer in treatment than patients who did not use disulfiram (Elbreder *et al.*, 2010). This accords with other studies showing that disulfiram, in particular, helped patients maintain abstinence and in treatment for longer periods (e.g. Laaksonen *et al.*, 2007).

Treatment retention relates to the patients' ability to appraise their condition and understand it, which is perhaps easier in an acute rather than a chronic condition: it is of interest that Silvestre-Busto *et al.* (2001) found that that retention rates are higher among patients suffering from acute diseases compared with chronic diseases.

On the other hand, in our study, younger age (i.e. less chronicity) and less severe alcohol dependence predicted poor retention of our patients. As McKellar *et al.* (2006) suggested, patients with a shorter history tend to have accrued fewer alcohol-related problems, thus perceiving less necessity of treatment. This inability to perceive the need for treatment has been shown to be one of the main obstacles impeding patients to enter and remain in treatment (Edlund *et al.*, 2009). In the present study, treatment retention was indeed greater among older patients with severe alcohol dependence. The prolonged use of alcohol is related to higher rates of clinical problems, and this would be a motivation for treatment entry and retention of patients (O'Toole *et al.*, 2006).

Although the literature indicates that alcohol-dependent women experience more barriers regarding retention in treatment (Graff *et al.*, 2009; Greenfield *et al.*, 2007), we found no difference between genders, both remaining in treatment for an average of 8 weeks. This period is shorter than that considered satisfactory by some experts, who recommend a minimum of 3 months of retention to achieve a positive result (Joe *et al.*, 1998; Health Canada, 2001; NIDA, 1999).

## CONCLUSION

We have reported that use of adjuvant medication, severe alcohol dependence, older age and higher frequency of

alcohol consumption were associated with a greater patient retention in treatment.

Potentially, this finding could lead to strategies to promote retention in treatment of the most vulnerable individuals. The impact of such specific programmes on patient retention should be further evaluated in future research.

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*Conflict of interest statement.* None declared.

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