

Predicting drinking outcomes:

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**Predicting drinking outcomes: Evidence from the United Kingdom Alcohol Treatment
Trial (UKATT)**

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Abstract**Aims**

To explore client characteristics that predict drinking outcomes using data from the UK Alcohol Treatment Trial (UKATT).

Methods

Multiple linear regression was used to determine if there were any characteristics, measured before the start of treatment, that could predict drinking outcomes at three and 12 months, as measured by percent day abstinent (PDA) and drinks per drinking day (DDD) over the preceding 90 days.

Results

Lower baseline DDD score and greater confidence to resist drinking predicted lower DDD at both three and twelve months following entry to treatment. In addition to baseline PDA and having greater confidence to resist heavy drinking, female gender, aiming for abstinence, more satisfaction with family life and a social network that included less support for drinking were predictors of percent days abstinent.

Conclusions

Overall the strongest and most consistent predictors of outcome were confidence to avoid heavy drinking and social support for drinking. More predictors were identified for percent of days abstinent than for drinks per drinking day. For percent of days abstinent, a number of client characteristics at baseline consistently predicted outcome at both month three and month twelve.

Introduction

Developing effective interventions for clients with alcohol problems may be enhanced through an understanding of those client attributes that have an impact on drinking behaviour independent of the effect of a specific treatment modality. Identifying these attributes potentially allows for the development of pre-treatment interventions, such as improved social care packages, better to address the needs of particular subgroups, and may enable the identification of attributes that should be targeted as part of the treatment process itself.

A large number of studies have evaluated baseline predictors of treatment outcome for clients with alcohol use disorders. In a systematic review, Adamson et al. (2009) identified 31 potential predictors from 51 treatment outcome studies. From analyses of these potential predictors 12 key predictors were identified that consistently predicted outcome in 19 of the studies. These were defined in three groups: four demographic and social functioning measures, six substance-related measures and two that were classed as other clinical measures. The four key demographic and social functioning factors identified were employment, gender, socioeconomic status or income, and religion. The six substance-related measures that were predictors of outcome were baseline alcohol consumption, dependence severity, treatment history, alcohol-related self-efficacy, motivation and treatment goal. Other clinical measures that were found to be key predictors in the review were psychopathology rating and neuropsychological functioning. From all the key predictors identified, the most consistent were dependence severity, psychopathology ratings, alcohol-related self-efficacy, motivation and treatment goal.

Many studies have examined predictors individually. Project MATCH, the largest treatment trial in the alcohol field, looked at a range of treatment predictors. Project MATCH Research

Group (1997a, 1997b; 1998) reported that greater pre-treatment social support for drinking predicted poorer outcome at 12 months but not at three years. The confidence and temptation subscales of the *Alcohol Abstinence Self-Efficacy Scale* (DiClemente, Carbonari et al. 1994) were used to predict drinking outcomes at three years, with greater temptation and lower confidence at baseline being significant predictors of increased drinks per drinking day. Project MATCH Research Group (1998) utilised both the *Stages of Change Readiness and Treatment Eagerness Scale* (Miller and Tonigan 1996) and a subset of questions derived from the *University of Rhode Island Change Assessment* (URICA) to measure motivation to change, which had previously found to be a robust predictor of outcome. Higher motivation and more advanced stage of change at baseline significantly predicted more percent days abstinent and lower drinks per drinking day at 3 year follow-up (DiClemente and Hughes 1990). In studies where dependence did emerge as a predictor of outcome, the association usually indicated that increased severity at baseline predicted poorer outcome. However, the reverse association was apparent in Project MATCH (1997b).

The COMBINE study was a large pharmacotherapy clinical trial for treating alcohol dependence in the USA; a parallel study, PREDICT, was conducted in Germany (Gueorguieva 2014). Using data from both studies the authors aimed to identify predictors of abstinence from heavy drinking. The study considered over 100 baseline predictors but found only two reliable predictors, longer consecutive days of abstinence and a drinking goal of complete abstinence, both associated with better outcomes.

Another paper also examined data from two studies involving treatment-seeking clients (Witbrodt and Romelsjo, 2012), one based in Sweden and the other in the USA. In both samples better drinking outcomes at one year were reported by women, younger age groups and those with an abstinence goal. Chiappetta et al (2014) looked at predictors of quit

attempts and successful quit attempts in a sample of individuals with alcohol use disorders. They found that for individuals with alcohol abuse, greater severity of alcohol use disorder, having a co-occurring drug use disorder and a greater number of psychiatric disorders decreased the chance of success, while being female, married and older than 40 years increased the chance of success. Among individuals with alcohol dependence, having nicotine dependence, a greater number of psychiatric disorders and personality disorders decreased success rates. Sugarman et al (2014) found that better drinking outcomes after residential treatment for alcohol dependence were associated with education, higher self-efficacy, social support, and depression.

Quality of life is a predictor that has been examined less frequently than others. Picci et al (2014) looked at quality of life as a predictor of relapse in 199 patients entering inpatient alcohol detoxification. The quality of life measures contained four domains: physical health, psychological health, social relationships and environment. Whilst quality of life changed in parallel with drinking outcomes, none of the baseline scores predicted relapse.

Previous studies have identified many different predictors of outcomes; sometimes the same predictors have been identified, yet the association was reversed. There are few consistent predictors between studies and many predictors have been explored individually, without taking into account the relationships between the different predictors. The UKATT data set is based on a large, mixed treatment-seeking population with excellent follow up rates and contains the majority of the key predictors identified above. This provides an opportunity to examine these predictors in a single model, using multiple regression to determine which are the strongest predictors of drinking outcomes after other potentially confounding variables have been adjusted for. These analyses will add to the current literature and potentially inform the direction of future research and treatment.

Methods

Procedure

The United Kingdom Alcohol Treatment trial (UKATT) was a multicentre, pragmatic randomised controlled trial conducted at seven sites across the United Kingdom. Ethical approval was obtained from all the relevant local research ethics committees.

The trial involved a comparison of two psychosocial interventions for alcohol problems: a network based treatment, Social Behaviour and Network Therapy (SBNT) (Copello et al. 2009) comprising up to eight, 50-minute sessions over an eight to twelve week period and a briefer, motivationally-based treatment, Motivational Enhancement Therapy (MET) based on Miller et al. (1992) and consisting of three, 50-minute sessions over a twelve week period.

Full details of the trial procedure are published elsewhere (UKATT Research Team, 2001).

Clients entering treatment at each of the sites were screened for eligibility. Those who were eligible and provided full informed consent were randomised to either SBNT or MET.

Adaptive allocation was used to reconcile treatment assignment with therapist availability, with more clients randomised to MET. Assessments were conducted at baseline prior to randomisation and then at three and twelve months after randomisation, with the 3-month follow-up corresponding to post-treatment assessment for those clients who completed the full treatment course.

Participants

Between 1999 and 2001, 742 clients who would normally receive treatment for alcohol problems were recruited at the participating sites. Excluded were clients aged less than 16 years, illiterate, with uncontrolled psychotic illness or severe cognitive impairment, about to

leave the area and unable to provide a contact, for whom alcohol was not the main problem or who were already receiving treatment for an alcohol problem.

Average age of the trial sample was 42 years (SD=10), 74% were male, baseline mean drinks per drinking day (DDD) was 25 (sd=15) and mean baseline percent days abstinent (PDA) was 29 (sd=26). Follow up rate at month three was 92.9% (689/742) and at twelve months was 83.2% (617/742). The primary analysis found no significant differences between the randomised groups in terms of alcohol consumption measures or any other outcome variable three or 12 months after randomisation, although both groups showed significant improvements. Full results for the main hypotheses may be found in UKATT Research Team (2005) and for client-treatment matching hypotheses in UKATT Research Team (2008).

Measures used in the analysis

The analyses are secondary analyses of a randomised controlled trial that was designed to test primary hypotheses. All the potential 27 predictors included in the analysis were decided by the experienced research team prior to analysis, based on the data collected in the trial and available evidence. They were chosen to cover a wide breadth of categories, demographic variables, social measures, alcohol consumption and alcohol related psychological variables, the goals reported, treatment variables and generic physical and mental health measures. Baseline measures were also included to test specific client-treatment matching hypotheses (see UKATT Research team, 2001, 2008). A variable representing randomised group was also included.

Demographic and social functioning measures

Demographic variables were recorded by a researcher prior to randomisation and included: age, gender, employment status, whether clients had children, relationship status, housing tenure, income and education. For the purpose of these analyses employment status was defined as employed (part- or full-time) or not, relationship status was defined as living with partner and housing tenure was defined as living in temporary accommodation or not. Income was summarised into three categories: <£10,000, £10-£20,000 and >£20,000.

Current family atmosphere was measured using the *Family Environment Scale* (Moos and Moos 1986). This consists of three subscales: family cohesion, freedom of expression of emotion and open conflict. These were combined to compute a total family satisfaction score, with a higher score representing higher satisfaction.

Current network support, both general and specific to drinking, was measured using the *Important People and Activities Inventory* (Clifford and Longabaugh 1991). Two scales were included in the analysis: social support (SS) was the number of people in the social network that the client saw at least weekly, excluding heavy drinkers, and social support for drinking (SSD) reflected the number of heavy drinkers in the client's social network.

Substance-related measures

Measures of alcohol consumption in the 90 days prior to randomisation were derived by the researcher using Form 90 (Miller 1996). This allows a calculation of PDA and DDD in the 90 days prior to the assessment. In order to include abstainers in the analyses, those abstaining at follow-up were recorded as having a DDD of zero.

Alcohol dependence was measured using an instrument developed to evaluate dependence in a treatment setting, the *Leeds Dependence Questionnaire* (LDQ) (Raistrick et al. 1994). The

LDQ consists of 10 questions that are summed to compute a maximum score of 30, with a higher score denoting more severe dependence.

Readiness to change was measured using the *Readiness to Change Questionnaire – Treatment Version* (RCQ[TV]: Heather et al. 1999), an instrument designed to allocate clients to one of three of Prochaska and DiClemente's (1992) stages of change (precontemplation, contemplation or action). An overall readiness to change score was computed (contemplation + action – precontemplation) where a higher score indicates a greater action-orientation.

Alcohol self-efficacy was assessed using an adaptation of the *Alcohol Abstinence Self-Efficacy Scale* (DiClemente et al. 1994) to embrace both abstinence and moderation goals. Two subscales were used in the analysis - temptation to consume alcohol in specific situations and confidence to resist heavy drinking in those situations. A higher score for the temptation scale represents greater temptation to drink excessively whilst a higher score on the confidence scale represents greater confidence not to drink excessively in given situations.

Negative alcohol expectancies were measured using the *Negative Alcohol Expectancies Questionnaire* (NAEQ) (McMahon and Jones 1992). Two subscales were incorporated into the analysis: proximal (same day) and distal (next day). In UKATT the NAEQ was scored so that a lower score indicates more negative expectancies, which is a worse outlook.

Alcohol-related problems were measured using the common item subscale of the *Alcohol Problems Questionnaire* (APQ) (Drummond 1990). A higher score indicates more alcohol-related problems.

Also included in the analyses were data on whether or not the client had been through detoxification prior to recruitment to the trial and three client goals regarding whether or not

abstinence was aimed for and recorded at randomisation. The abstinence goals were completed by the screener based upon their discussion and assessment; the screener was asked “Is the client aiming for abstinence?” with the responses, probably yes or probably no. If the response was probably yes the client’s responses to being asked if they were likely to use disulfiram and also whether they were likely to use acamprosate were added.

Other clinical measures

Generic mental health was measured using two instruments: the *General Health Questionnaire* (GHQ-28) (Goldberg 1972) and the mental component score of the SF36 (Ware et al. 1995). A higher score on the GHQ represented worse mental health, as did a lower score on the SF36. Generic physical health was measured using the physical component score of the SF36 (Ware et al. 1995). A higher score represented better physical health.

Statistical analysis

All measures selected were collected at baseline prior to the start of any treatment and so did not include any treatment process measures. In order to identify the strongest predictors, all measures were included in a single model. Multiple linear regression was used to identify variables that might predict outcome at month three or month 12 following randomisation. When looking at a number of potential predictors, missing data can become an issue when using only complete cases. For these analyses, missing data analysis techniques were employed to deal with the missing data, thus maximizing the data available. The SAS procedures PROC MI and PROC MIANALYZE were used to perform the analyses. PROC MI created multiple imputations for missing data. These imputations were then analysed using multiple linear regression and each model contained all of the potential predictors. Each model was adjusted for treatment site. The results were then combined using PROC

MIANALYZE (Rubin 1976). In total four analyses were conducted - for Percent Days Abstinent and Drinks per Drinking Day at each of the two follow-up time-points. All analyses were conducted using SAS v9.1. Model checking was performed by using residual plots to ensure the model was a good fit for the data. These were all considered to be satisfactory, especially when considering the large sample size.

Collinearity can be a problem when analysing predictors that are correlated. In order to check the effect of collinearity, the variance inflation factor (VIF) was computed. The variance inflation factor quantifies the severity of the multicollinearity with a value of 4 used as a cut-off point to indicate when collinearity has become too serious (Miles and Shevlin, 2001). None of the computed VIF scores for the predictor variables exceeded this value, the largest being 3.01 which, when also considering the large sample size, was not high enough to warrant concern.

Results

Predictors of drinks per drinking day (DDD)

Three months after randomisation, shortly after the end of treatment, a number of variables were identified as significant predictors of lower DDD: living with a partner, lower DDD at baseline, lower Leeds Dependence Questionnaire score and lower social support for drinking score. The 'confident' subscale of the modified Alcohol Abstinence Self- Efficacy Scale was also significant. Those clients who were more confident in not drinking excessively in tempting situations had lower drinks per drinking day at month three. Results of the regression models are presented in Table 1.

Table 1 about here

At 12 months after randomisation, not living in temporary accommodation, lower DDD at baseline, lower SF-36 mental component score and having a higher modified Alcohol Abstinence Self- Efficacy Scale confidence score at baseline all significantly predicted lower drinks per drinking day at month 12. All results are shown in Table 1.

Predictors of percent days abstinent (PDA)

At three months after randomisation higher PDA was associated with being female, greater baseline PDA, greater readiness to change and more confidence to resist drinking. The three goals stated prior to randomisation were also significant in predicting PDA at month three, with those probably aiming for abstinence being more likely to have a higher PDA. However, those aiming for abstinence through disulfiram and those planning to use acamprosate had lower PDA at follow up. More social support for drinking at baseline predicted a lower PDA at follow up. Previous detoxification and more family satisfaction, as measured by the Family Environment Scale, were significant in predicting higher PDA, All results are shown in Table 2.

Table 2 about here

At 12 months after randomisation higher percent days abstinent was associated with being female, higher percent days abstinent at baseline, more confidence to resist drinking and lower drinks per drinking day at baseline. Clients with a lower score on the Negative Alcohol Expectancies proximal scale (i.e. those with stronger negative expectancies) had higher PDA. Those aiming for abstinence, reporting better family satisfaction and reporting less social support for drinking at baseline also showed higher PDA. All results are presented in Table 2.

Discussion

Many variables that were considered to be likely candidates were not found to predict outcome. Consistent predictors of outcomes were: female gender, low social support for

drinking, a positive family environment, low drinks per drinking day, high percent days abstinent, greater confidence to resist drinking, and a goal of abstinence.

On the whole, PDA was better predicted than DDD, a finding consistent with reports by Breslin et al. (1997) and Project MATCH Research Group (1998). The difference in the number of variables predicting PDA and DDD could be due to the greater variability in DDD scores (UKATT Research Team, 2005) which may have required a larger sample for associations to reach significance. Although they are both measures of consumption, the fact that the number of predictors is different and that they are not strong predictors of each other, highlights the partial independence of these two measures.

Apart from baseline DDD, which would be expected to be a strong predictor of DDD at follow-up, the only other variable that predicted DDD at both month three and month twelve was the confidence scale of the modified Alcohol Abstinence Self-Efficacy Scale, with greater baseline confidence to resist drinking predicting lower DDD.

For PDA the consistent positive predictors were being female, baseline PDA, more confidence to avoid drinking excessively in given situations, aiming for abstinence, greater family satisfaction and less social support for drinking.

Of the alcohol-related psychological variables, self-efficacy (the confidence to resist heavy drinking), although only a weak predictor at three months, emerged as a strong predictor of both quantity of alcohol consumed per day and frequency of alcohol consumption at 12 months. This finding concurs with a number of other studies (Ilgen & Moos, 2005; DiClemente et al, 2001). In the out-patient arm of Project MATCH, self-efficacy emerged as one of the strongest predictors of outcome, together with readiness to change, three years after treatment. Adamson et al. (2009) identified self-efficacy as the most consistent predictor of

outcome. Among psychological variables, it is interesting that confidence to resist heavy drinking was a strong predictor of good outcome in view of research that has highlighted the role of perceived uncontrollability of alcohol consumption in problem drinking (Spada & Wells, 2009; Caselli & Spada, 2013). This strengthens the case for the further development of interventions aimed at increasing self-efficacy in relation to the controllability of alcohol consumption and coping with desire to drink.

The only other reliable predictor consistent with the Adamson et al. review that was found in these analyses was treatment goal, those aiming for abstinence having higher percent days abstinent. An earlier analysis of the UKATT data found that clients aiming for abstinence had more abstinent days at follow up than those not stating a preference for abstinence (Adamson et al. 2010).

Higher social support for drinking was also a strong predictor of decreased PDA. Relatively few studies have examined this variable as a predictor of outcome (Adamson et al. 2009), although two large trials have reported related findings. In Project MATCH (1997a) greater social support for drinking predicted poorer outcome at 12 months in both arms of the trial and in the COMBINE study (Anton et al. 2006) the higher frequency of network drinking was significantly related to lower levels of PDA. It might be expected from this that a treatment specifically designed to reduce network support for drinking, such as SBNT used in the UKATT, would lead to better outcomes than other forms of treatment (eg, MET) among clients with high network support for drinking at baseline. However, this was not observed in the UKATT data where the matching hypothesis involving network support for drinking was not confirmed (UKATT Research Team, 2008). The reasons for this failure to confirm a plausible hypothesis are unclear.

The present study also found that family satisfaction as measured by Family Environment Scale was a significant predictor of PDA. Marital or family satisfaction or cohesion has long been recognised as a predictor of positive outcome in the treatment of alcohol problems (Orford & Edwards, 1977; Orford et al. 1976). This is consistent with the report of Beattie (2001) who found that marital and family adjustment was a stronger predictor of positive drinking outcome than the status of being married *per se*.

We had expected to identify more variables significantly predictive of treatment outcome, given the large sample size, the inclusion of a wide range of variables frequently found to predict outcome in other studies and the fact that UKATT contained all four elements found to be associated with greater ability to predict outcome (Adamson et al., 2009): a sample that is mixed gender, outpatient, and not limited to those diagnosed with alcohol dependence, and the use of continuous variables as outcome measures. The variables likely to predict outcome, based on the previous review by Adamson et al (2009), which proved not to be predictive in the current study, were employment status, income, dependence severity and psychopathology. This may at least in part be due to the analytical approach; a multiple regression model, examining all predictors in a single model rather than numerous individual models. This approach aims to identify the strongest predictors amongst a range of potential predictors, adjusting for the relationship between predictors rather than conducting multiple individual analyses where these potentially important relationships are ignored.

The findings support the general direction taken by best practice guidelines in the UK (NICE CG115, 2011). The same guidance could equally well be applied to substance misuse more generally rather than just to alcohol misuse. Two implications for treatment providers stand out. First, and this is quite feasible for any agency to introduce, there should be some inclusion

of social networks in treatment planning. This could be achieved by implementing models like Social Behaviour and Network Therapy. Last, building self-efficacy has long been seen as important. Some of this occurs as a result of other changes during treatment, for example, getting support for resisting drinking from friends, and some can be achieved by therapy directed at developing coping skills. None of these implications is new, nor is it new that too few staff qualified to deliver on this evidence are available in UK treatment agencies.

Limitations

The results of this analysis enhance the evidence base regarding participant factors and their role in treatment outcome for participants seeking treatment for alcohol problems. However, there are a number of limitations. Although this is one of the largest treatment samples used to examine predictors of outcome for alcohol treatment, these were secondary analyses of a randomised controlled trial which was powered to find primary effects. Further, these analyses are exploratory in nature and the analytical strategy has been kept relatively simple for ease of interpretation, including only predictors that were measured prior to treatment; more advanced modelling approaches may yield more information from the data. (Cook et al., 2015a, b). All outcomes used self-reported measures which have their own limitations with regards to recall and potential associated biases. The treatment outcomes we have attempted to predict in this analysis are restricted to drinking variables; other general adjustment and life satisfaction aspects of treatment outcome, which have been shown to be relatively independent of each other and show imperfect correlations with drinking behaviour (Babor et al. 2003), have not been addressed.

Conclusion

There were some clear baseline predictors of outcome. This applied more to the number of days abstinent than the average quantity of alcohol consumed per day. Better treatment outcome was achieved by females, those with low social support for drinking, a positive family environment, low drinks per drinking day, high percent days abstinent, greater confidence to resist drinking, and a goal of abstinence. Self-efficacy consistently emerges as a reliable and strong predictor of treatment outcome.

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Table 1: Parameter estimates (Standardised β) and 95% confidence intervals from regression models for DDD at 3 and 12 months

	Parameter	DDD - Month 3, n=742				DDD - Month 12, n=742				
		Estimate	95% CI		p-value	Estimate	95% CI		p-value	
Demographic	Age	0.05	-0.05	0.14	0.345	-0.06	-0.19	0.06	0.304	
	Sex	-1.33	-3.34	0.68	0.195	-1.92	-4.77	0.92	0.177	
	Employed	-1.98	-4.23	0.27	0.084	-1.78	-5.13	1.56	0.282	
	Temporary accommodation	3.32	-2.11	8.75	0.228	12.76	7.04	18.48	<.0001	
	Any children (Yes)	1.26	-1.35	3.88	0.327	0.68	-1.73	3.09	0.575	
	Living with partner	-2.58	-4.85	-0.31	0.027	-1.87	-4.40	0.66	0.145	
	Income	10-20k	1.09	-1.56	3.74	0.419	0.17	-2.73	3.08	0.907
		>20k	1.03	-2.03	4.09	0.508	1.13	-3.60	5.85	0.623
No Qualifications	0.18	-1.66	2.02	0.849	-1.23	-3.52	1.05	0.286		
Family and network variables	Family Environment Scale	-0.02	-0.30	0.25	0.857	-0.14	-0.65	0.38	0.559	
	Social Support Drinking	0.20	0.01	0.38	0.035	0.09	-0.11	0.30	0.382	
	Number of Network Members	0.17	-0.27	0.60	0.447	0.04	-0.42	0.51	0.855	
Alcohol consumption variables	Percent Days Abstinent	0.02	-0.01	0.06	0.236	0.02	-0.02	0.07	0.282	
	Drinks per drinking day	0.41	0.34	0.48	<.0001	0.36	0.27	0.45	<.0001	
Alcohol related psychological variables	Leeds Dependence Questionnaire	0.22	0.07	0.38	0.005	0.09	-0.09	0.27	0.332	
	Readiness to change	-0.02	-0.15	0.11	0.781	-0.09	-0.27	0.09	0.303	
	Modified Alcohol Abstinence Self-Efficacy Scale	confident	-0.08	-0.15	-0.01	0.023	-0.12	-0.19	-0.05	0.002
		tempted	0.02	-0.06	0.10	0.635	0.01	-0.08	0.11	0.780
	Negative Alcohol Expectancies	proximal	0.05	-0.37	0.46	0.817	-0.20	-0.59	0.20	0.322
		distal	-0.04	-0.11	0.03	0.264	0.03	-0.08	0.13	0.602
	Alcohol Problems Questionnaire (common subscale)	0.24	-0.02	0.49	0.069	0.22	-0.09	0.53	0.155	
Goals reported at baseline	To abstain	-1.13	-3.21	0.95	0.285	-0.54	-3.02	1.95	0.668	
	Abstain through disulfiram	-0.82	-3.56	1.92	0.557	0.08	-3.02	3.18	0.960	
	Use acamprosate	1.11	-1.47	3.70	0.393	0.47	-2.49	3.42	0.752	
Previous detox		-1.14	-3.37	1.08	0.312	0.62	-2.07	3.32	0.647	
Treatment		0.35	-1.68	2.39	0.727	1.45	-0.80	3.70	0.199	
Generic mental and physical health	SF36 Mental Component Score	0.05	-0.05	0.16	0.306	0.25	0.13	0.38	<.0001	
	SF36 Physical Component Score	0.09	-0.01	0.20	0.079	0.06	-0.08	0.21	0.372	
	General Health Questionnaire	-0.06	-0.15	0.02	0.128	0.09	-0.01	0.19	0.063	

*The model was *adjusted for centre*

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Table 2: Parameter estimates (Standardised β) and 95% confidence intervals from regression models for PDA at 3 and 12 months

	Parameter	PDA - Month 3, n=742				PDA-Month 12, n=742				
		Estimate	95% CI		P	Estimate	95% CI		P	
Demographic	Age	0.05	-0.22	0.32	0.715	-0.01	-0.33	0.31	0.950	
	Sex	6.17	0.47	11.88	0.034	6.92	0.14	13.70	0.045	
	Employed	1.92	-4.29	8.13	0.545	1.49	-6.31	9.29	0.705	
	Temporary accommodation	-11.87	-28.58	4.84	0.158	-17.28	-34.73	0.17	0.052	
	Any children (Yes)	-2.43	-7.88	3.03	0.383	2.81	-3.75	9.37	0.397	
	Living with partner	5.31	-0.43	11.05	0.070	-0.73	-7.47	6.02	0.832	
	Income	10-20k	-2.68	-9.63	4.27	0.450	-1.26	-9.85	7.33	0.771
		>20k	-3.15	-11.51	5.20	0.459	-3.49	-13.50	6.52	0.492
	No Qualifications	-0.82	-5.92	4.29	0.754	-0.05	-6.59	6.48	0.988	
Family and network variables	Family Environment Scale	1.04	0.14	1.95	0.025	1.36	0.17	2.55	0.029	
	Social Support Drinking	-0.53	-1.05	-0.01	0.046	-0.73	-1.25	-0.21	0.006	
	Number of Network Members	0.94	-0.18	2.06	0.100	0.42	-0.91	1.76	0.530	
Alcohol consumption variables	Percent Days Abstinent	0.48	0.38	0.58	<.0001	0.45	0.33	0.56	<.0001	
	Drinks per drinking day	-0.09	-0.28	0.10	0.363	-0.28	-0.50	-0.06	0.012	
Alcohol related psychological variables	Leeds Dependence Questionnaire	0.14	-0.26	0.55	0.496	0.16	-0.32	0.64	0.519	
	Readiness to change	0.40	0.05	0.74	0.024	0.37	-0.05	0.78	0.083	
	Alcohol Abstinence Self- Efficacy Scale	confident	0.26	0.04	0.49	0.025	0.35	0.12	0.58	0.004
		tempted	-0.18	-0.41	0.05	0.128	-0.04	-0.33	0.24	0.765
	Negative Alcohol Expectancies	proximal	-0.84	-1.83	0.15	0.095	-1.26	-2.33	-0.20	0.020
		distal	-0.10	-0.31	0.11	0.368	-0.06	-0.29	0.18	0.616
		Alcohol Problems Questionnaire (common subscale)	-0.06	-0.76	0.65	0.878	-0.45	-1.41	0.51	0.346
Goals reported at baseline	To abstain	10.94	5.51	16.38	<.0001	7.48	0.80	14.16	0.029	
	Abstain through disulfiram	-7.77	-15.42	-0.12	0.047	-0.95	-9.72	7.82	0.830	
	Use acamprosate	-10.19	-16.57	-3.80	0.002	2.27	-4.56	9.10	0.515	
Previous detox		9.25	2.84	15.65	0.005	-4.95	-12.69	2.79	0.205	
Treatment		0.34	-4.27	4.96	0.884	1.21	-3.95	6.37	0.646	
Generic mental and physical health	SF36 Mental Component Score	-0.19	-0.47	0.09	0.182	-0.06	-0.38	0.26	0.729	
	SF36 Physical Component Score	-0.02	-0.30	0.26	0.893	-0.14	-0.47	0.19	0.404	
	General Health Questionnaire	-0.08	-0.29	0.13	0.470	0.09	-0.19	0.37	0.509	

The model was adjusted for centre

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Highlights

- Different predictors were identified for frequency of drinking as measured by percent days abstinent and intensity as measured by drinks per drinking day.
- Better outcomes were achieved by females, those with low social support for drinking, a positive family environment, low drinks per drinking day, high percent days abstinent, greater confidence to resist drinking, and a goal of abstinence.
- Self-efficacy consistently emerges as a reliable and strong predictor of treatment outcome.

ACCEPTED MANUSCRIPT