Alcohol and Alcoholism, 2018, 53(1) 78–88
doi: 10.1093/alcalc/agx078
Advance Access Publication Date: 26 October 2017
Article

Article

Inclusion of Alcoholic Associations Into a Public Treatment Programme for Alcoholism Improves Outcomes During the Treatment and Continuing Care Period: A 6-Year Experience

Gabriel Rubio[1,2,3,4,5], Marta Marín[1,4,*], Francisco Arias[1,4], José Ramón López-Trabada[1,4], Martín Iribarren[1,4], Susana Alfonso[1,4], Raquel Prieto[1,4], Agustín Blanco[1,4], Belén Urosa[6], Victoria Montes[6], Rosa Jurado[1,3,5], Miguel Ángel Jiménez-Arriero[1,2,4,7], and Fernando Rodríguez de Fonseca[3,8]

[1]Centro de Actividades Ambulatorias (CAA) 3ª Planta, Bloque B. Hospital Universitario 12 de Octubre. Avda. de Córdoba S/N, 28042, Madrid, Spain, [2]Psychiatry Department, Medical School, Complutense University of Madrid, Spain, [3]Addictive Disorders Network (Carlos III Health Institute, RETICS PROGRAMME), Spain, [4]Psychiatry Department, University Hospital 12 de Octubre, Spain, [5]Medical School, Complutense University of Madrid, Spain, [6]Psychology School, Methodologic Department, Pontifical University of Comillas, Spain, [7]Biomedical Research Centre in the Mental Health Network (CIBERSAM), Spain, and [8]Unidad de Gestión Clínica de Salud Mental, Instituto IBIMA, Hospital Regional Universitario de Málaga, Spain

*Corresponding author: Servicio de Psiquiatría. Edificio de Actividades ambulatorias, Planta 3, Módulo C. Hospital Universitario 12 de Octubre, Avda. de Córdoba, s/n 28041 Madrid, Spain. E-mail: martukam81@hotmail.com

Received 5 May 2017; Revised 30 August 2017; Editorial Decision 16 September 2017; Accepted 20 September 2017

Abstract

Aims: To investigate whether inclusion of self-help groups into the hospital treatment programme improves the prognosis of alcohol dependence through the treatment period; and to examine therapeutic adherence and prognosis during continuing care.

Method: Patients attending the treatment programme at the 'Hospital 12 de Octubre' were randomized into two groups. In Group A ($n = 123$), patients received the usual treatment included in our programme, whereas in Group B ($n = 126$), patients also attended self-help groups. Patients were assessed with psychological scales at baseline, at the end of the treatment period and after completing the continuing care visits. Data were collected over a total of 6 years.

Results: During the treatment period, patients in Group B accumulated more months of abstinence and dropped out less. During continuing care, patients in Group B accumulated more months of abstinence and therapeutic adherence was higher. Variables that were associated with these results during the continuing care period were: visits to the GP, scores on anxiety, impulsivity and meaning of life scales, and belonging to the group that attended the alcoholic associations.

Conclusions: Mutual help groups incorporated into a public treatment programme appear to improve outcomes during treatment and on into continuing care. This experience supports cooperation between public health centres and alcoholic associations in treating alcoholism.

Short Summary: Including alcoholic associations into the public treatment programme for alcoholism of the 'Hospital 12 de Octubre' in Madrid was shown to be associated with better outcomes

in terms of months of accumulated abstinence, dropout rates and therapeutic adherence, during the treatment and continuing care periods.

INTRODUCTION

It has been estimated that 2–7% of the Spanish population are heavy drinkers (>60 g of ethanol/day for men) and that the 50% of this group meet alcohol dependence criteria (WHO, 2011). Interventions are often based on strategies with little evidence of effectiveness (Miller *et al.*, 2006). They tend to be models for acute treatment that include short-term (3–6 months) detoxification and relapse prevention programmes which do not take into the period after 'treatment' has finished (McLellan *et al.*, 2000). There is often little coordination between professionals treating associated mental and physical illness, despite multiple, comorbidity (Weisner, 2001; McKay and Sturmhöfel, 2011). One strategy that can be included in both intensive/acute and continuing care treatment programmes is to link with self-help groups (Alcoholic Associations).

Tonigan *et al.* (1996) and Kownacki and Shadish's (1999) meta-analyses, as well as the Cochrane review (Ferri *et al.*, 2006), agree on the usefulness of self-help groups during the initial months of treatment (12–24 months). In a recent review (National Collaborating Centre for Mental Health, 2011) about the effectiveness of different therapeutic strategies for AUD, in which six studies with a total of 2556 participants were included, 12-Step Facilitation Programmes for linking with AA were compared to other therapeutic modalities (cognitive-behavioural therapies, motivational techniques, marriage counselling, psychoeducation and social skills). In reducing alcohol consumption at 6 months this guide concluded that 12-Step Facilitation was more effective than other techniques. However, this difference disappeared when patients were assessed at 12 months. No significant differences were observed in terms of accumulated abstinence and relapse rates at 6 and 12 months. During the follow-up and post treatment period no significant differences between drop-out rates were observed.

In those studies comparison was made between interventions carried out in self-help groups (AA) vs therapeutic modalities developed by psychologists, usually over some 3–6 months (National Collaborating Centre for Mental Health, 2011). In our daily practice, and being conscious of the usefulness of these interventions and that they are free-of-charge, professionals normally advise attendance at self-help groups, although in many cases this is conveyed without conviction. Thus, there has been research on improving patient's motivation for attending these groups which find, for example, that adherence is greater when a member of AA referred them (Manning *et al.* 2012).

Humphreys *et al.* (2004) showed that encouraging patients to attend to self-help groups reduces healthcare costs. Self-help groups are flourishing on the internet (Sinclair *et al.*, 2017).

Regarding the chronicity of alcohol dependence, mutual help groups can contribute to the improvement of continuing care (McKay and Holler-Sturhöfel, 2011). Reviews (Lenaerts *et al.*, 2014; Humphreys *et al.*, 2014; Kelly *et al.*, 2014; Nalpas *et al.* 2017) on the effectiveness of continuing care, 12-Step Facilitation strategies were compared to others carried out by treatment teams or by the Primary Care professionals. Follow-up periods in the reviewed studies varied; one conclusion was that it is better to implement these interventions than not, although no conclusions could be drawn on what type of intervention was more effective (Lenaerts *et al.*, 2014). In these studies the question was also posed about the role of these associations as an alternative to other interventions instead of complementary to programmes implemented from the Primary Care Setting.

There are few studies that assess the inclusion of these groups into public treatment or continuing care programmes. A possible explanation is the difficulty for some patients of participating in groups which express a spiritual component (Manning *et al.*, 2012), as well as the fact that often these associations do not facilitate coordination with professionals because of their rules on the anonymity of their members (Navarrete *et al.*, 2016).

Difficulties cooperating with professional teams have been overcome by several Mutual Aid Associations which were developed in the Mediterranean area (Spain, France and Portugal) during the 1960s. One of these associations, the Federation of Alcoholics of the Community of Madrid (FACOMA), was introduced into our country 30 years ago. It was developed in parallel to AA but with noticeable differences: (a) in the same association mutual aid groups were conducted simultaneously for patients and families; (b) they had a close contact to health professionals so that medical professionals, psychologists and psychiatrists could attend groups as advisors; and (c) they maintained a dialogue with Local Government in order to collaborate and demand an improvement of treatment and prevention of alcoholism (Navarrete *et al.*, 2016).

The programme of these associations differs from earlier models based on confrontation, now comprising: (a) mutual aid and motivation for changing lifestyle; (b) inclusion of aspects of the positive psychology; (c) acquisition of values as a way of maintaining abstinence; and (d) promoting sport, cultural and social activities (FACOMA, 2016). In 2007, a close collaboration between the alcoholism treatment programme of the 'Hospital 12 de Octubre' (Madrid, Spain) and two of the associations included in the Federation of Ex-Alcoholics of the Community of Madrid which has developed a network of psychosocial alternative to addictions centres (Red CAPA) was initiated. This collaboration was the basis for the programme 'Help Yourself-Help Us' whose aim was to include self-help groups in our therapeutic programmes for patients who opted for abstinence-oriented treatment. Coordination with these associations with General Practitioners allowed us to have, in a simple and economic way, a treatment programme with many similarities with those programmes of community reinforcement (Meyers and Miller, 2001). The first results on the effectiveness of this model of intervention showed that subjects and families attending these associations made significant improvements in their quality of life and that they had a better prognosis at 6 months (Rubio *et al.*, 2013). This has ensured that our programme is recognized and included in the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, 2015).

In summary and taking into account the role of these associations in the improvement of the prognosis during the acute treatment period of alcohol dependence and in continuing care, as well as the fact that they are free of charge, the main aims of this research were to assess the 24-month results of including FACOMA and Red CAPA Associations into public treatment

programmes of alcohol dependence; and to determine if including these Associations into the Continuing Care Programmes, carried out in the Primary Care sector (for 4 years), provided advantages in terms of therapeutic adherence and variables related to alcohol consumption. Secondarily, we investigate whether attending these Associations would also improve psychological variables such as anxiety, depression, impulsivity and 'meaning of life'. Mood-related variables have emerged as possibly denoting endophenotypes for the development of alcoholism. 'Meaning of life' as a variable has been included because for decades the means by which abstinence can be reached in AA is purported to be partly through the acquisition of spiritual values.

We measured outcome as months of accumulated abstinence, relapse percentages, serum gamma-glutamyl transferase (GGT), scores on scales assessing anxiety, depression, impulsivity and meaning of life, and follow-up visits carried out by the Primary Care sector.

METHOD

Sample

The sample was selected from the 420 patients who attended the outpatient Alcoholism Treatment Programme of the 'Hospital 12 de Octubre' during a period of 14 months (Fig. 1). Of those, 170 did not meet inclusion criteria which were: age (18–65), adequate cognitive ability, residence in the area, family support, agreement to commit to a 2-year abstinence programme, and family support. Thus 249 patients were randomized (n = 123 and n = 126 patients in each group). The commonest reasons for non-inclusion were lack of commitment (n = 132) and cognitive impairment (n = 38).

Design

This was a randomized study in which the traditional approach used for treating alcohol-dependent patients (Group A) was compared to an approach which involved adding to the usual treatment the programme of the two associations included in the network FACOMA-RED CAPA close to the area of the 'Hospital 12 de Octubre' (Group B).

We define two periods (Fig. 2): therapeutic interventions period, with duration of 2 years and carried out in an outpatient setting; and continuing care period, with duration of 4 years and carried out by the Primary Care sector were patients also received medical care.

The usual treatment of the 'Hospital 12 de Octubre' (Group A) involved a 5-stage multimodal approach throughout 24 months: (a) *Detoxification and motivation towards abstinence* (2–3 months). After detoxification, patients were offered relapse-prevention pharmacological treatment for at least for 9 months, with three options: naltrexone, disulfiram or neither. During the next 2–3 months patients attended group therapy based on a motivational model oriented towards abstinence (Alamo *et al.*, 2008). During this period, patient's families were invited to join group psychoeducation interventions. After detoxification patients were informed of the nature of the study and if they consented they were randomized; (b) *Relapse prevention* was based on the cognitive-behavioural model of Marlatt and Gordon (1985) and included 16 group sessions conducted by a psychologist and a psychiatrist; (c) *Social skills programme* was based on the one developed in the MATCH project (Kadden *et al.*, 1992) and included 12 closed group sessions conducted by a psychologist and a psychiatrist; (d) *Consolidation of behaviour and lifestyle changes*. This programme was developed by nursing professionals, in a 6-month semi-enclosed group format (every 3 months new patients were included); and (e) *Preparation towards discharge*. The objectives of this 6-month programme were to prepare patients towards cessation of treatment and to be referred to Primary Care teams. In the case that the patient had been receiving treatment because of a psychiatric disorder (depression and anxiety), he/she would be referred to his/her corresponding Mental Health Centre.

Once discharged from the Therapeutic Intervention Programme, patients were referred to the Continuing Care Programme carried out by the Primary Care team. During the first year after discharge from the Therapeutic Intervention Programme (T3, third year of the study) patients had an appointment every 2 months to review their current situation relative to their alcohol consumption and health

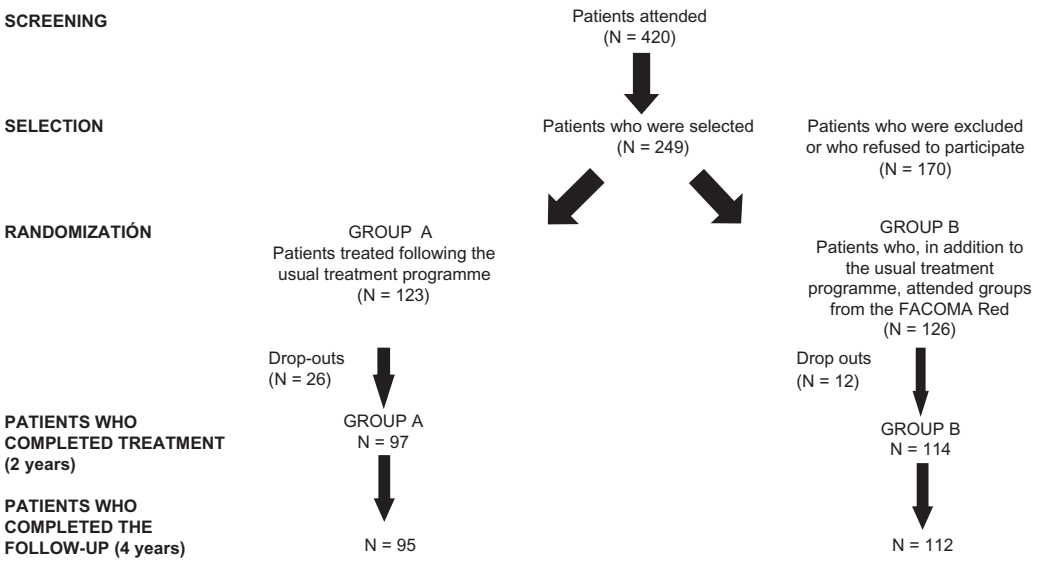

Fig. 1. Patient flow throughout the study.

BASELINE ASSESSMENT (T0)	END OF THE TREATMENT PERIOD (T2)	3-YEAR FOLLOW-UP (T3)	4-YEAR FOLLOW-UP (T4)	5-YEAR FOLLOW-UP (T5)	6-YEAR FOLLOW-UP (T6)
• DSM-IV-TR interview • SADS • TLFB • Craving scale • Cognitive impairment scale • Impulsivity scale • Anxiety scale • Depression scale • Meaning of Life Questionnaire • GGT	• TLFB Impulsivity scale • Anxiety scale Depression scale • Meaning of Life Questionnaire • GGT	• TLFB • Follow-up appointments	• TLFB • Follow-up appointments	TLFB Follow-up appointments	• TLFB • Craving scale • Cognitive impairment scale • Impulsivity scale • Anxiety scale • Depression scale • Meaning of Life • Questionnaire • GGT • Follow-up appointments
TREATMENT PERIOD		CONTINUING CARE PERIOD IN THE PRIMARY CARE SETTING			

SADS = Severity of Alcohol Dependence Scale
TLFB = Alcohol Timeline Follow Back
GGT = Gamma-glutamyl transferase

Fig. 2. Schedule of assessments during the treatment and continuing care periods.

issues. Second year post-discharge (T4, fourth year of the study) appointments were made every 4 months, and the rest of the years (T5 and T6, fifth and sixth years of the study) every 6 months. Data from the follow-up period carried out by the Primary Care sector were obtained from electronic medical records. If a patient had moved to another healthcare provider it was discussed with the General Practitioner responsible for the case.

Every 2 years, all participants were interviewed in order to fill out psychological scales, obtain a blood test to determine GGT, and acquire information relative to months of abstinence and attendance to follow-up appointments.

Group B patients, in addition to the same interventions as Group A, were encouraged to attend one of the two associations of the FACOMA-RED CAPA located in districts near our hospital. In these Mutual-Help Associations, 2-h patient and family groups were carried out every 2–4 days per week. Once the patient had agreed, the commitment was to attend every possible meeting. No maximum or minimum attendance was required. Some patients preferred attending three times per week, others 1 day per week. Their decision could change during the follow-up period. Initially, they might attend three or four times per week, whereas after 1 or 2 years of follow-up they preferred attending one or two times per week. Note that these associations promote activities like painting, theatre, writing or cultural trips groups, in addition to attending the mutual-aid groups. Professionals (G.R.V., M.I., R.P.) responsible for the coordination of meetings got a list with the weekly attendance of patients and their family members.

Of those who consented to the study, 38 dropped out during the treatment period (T0–T2) or during the post-discharge continuing care period (T2–T6, $n = 4$).

Assessment instruments

Patients were interviewed and diagnosed following the criteria from the DSM-IV TR (APA 2000).

The Alcohol Craving Scale based on three factors (ACS-3F) (Montes *et al.*, 2006; Jiménez *et al.*, 2009) assesses three subjective components of craving: positive reward craving, negative reward craving and loss of control.

The Severity of Alcohol Dependence Scale (SADS) (Rubio *et al.*, 1998) includes 30 Likert-type questions with four alternative answers. Total score distinguishes mild (<20 score), moderate (21–27 score) and severe (>37score) dependence.

Follow-up Alcohol Consumption: The Alcohol Timeline Follow-back (TLFB) interview (Sobell *et al.* 1988) was used to retrospectively assess daily alcohol consumption.

The Alcoholism Cognitive Impairment Detection Test (ACIDT) is a brief tool, easy to apply and useful for the detection of cognitive impairment (both, mild and moderate) in a population with a history of AUD. The cut-off point score for the detection of a possible cognitive impairment is 10.5, so subjects who obtained a lower score were excluded from study (Jurado-Barba *et al.*, 2017).

The Barratt Impulsiveness Scale (version 11, BIS-11, Patton *et al.* 1995) is a self-administered questionnaire comprising 30 items which determine the cognitive, motor and non-planning components associated to impulsiveness. The Spanish version (Oquendo *et al.*, 2001) has a good alpha coefficient and maintains these three factors.

The Hamilton Anxiety Rating Scale (HARS, Hamilton, 1959) and the Hamilton Depression Rating Scale (HDRS, Hamilton, 1967) were used to determine anxiety and depressive symptoms, respectively.

The Meaning in Life Questionnaire (MLQ) measures the significance each person has of his/her own nature and existence (Steger *et al.*, 2006). This scale assesses two 5-item subscales: presence of meaning and search of meaning. Presence of meaning refers to the extent to which people understand, give or see the significance of their lives together with the degree with which they perceive themselves with a later purpose, mission or objective.

As an indirect marker of alcohol consumption we used serum GGT level at each assessment.

Variables related with alcohol consumption were: months of accumulated abstinence (number of months of abstinence), relapse (any at-risk drinking day), number of relapses and serum GGT.

Variables measuring adherence to the therapeutic programme and continuing care period were number of drop-outs during each period, and number of follow-up appointments with the General Practitioner during the continuing care period.

Variables related with the psychological state were scores on impulsivity, anxiety, depression and meaning of life scales.

Statistical analyses

At baseline (T0), differences between continuous variables were compared using the Student *t*-test, whereas differences between qualitative variables were compared using the Chi square test. Changes on the scores of the scales assessing psychological states and GGT levels during the treatment period (T0 vs T2) were compared using the repeated measures ANOVA of two ways (2 × 2) considering the total scores on the scale (at baseline—T0 and at the end of the treatment period—T2), and the treatment group (Group A vs Group B) as variables. During the continuing care period, changes on the scores of scales and GGT were determine through the Repeated Measures ANOVA of two ways (2 × 2), using the total scores on the scales or GGT (during T2–T6) and treatment group (Group A vs Group B) as variables.

A regression model was used to examine factors affecting prognosis in 4-year follow-up period (T6). Initially, the sample was split into two prognosis groups. Good prognosis was considered when a subject had remained abstinent for more than the 75% of the continuing care period (>36 months of accumulated abstinence throughout T2–T6). Variables that significantly discriminated between groups were introduced into a linear regression model (ENTER method), where the dependent variable was: 'months of accumulated abstinence during T2–T6'.

RESULTS

As shown in Table 1, groups were similar at baseline, with a predominance of males (80%) and a mean period of schooling of 15 years. Most were employed (80%). They met criteria for Alcohol Dependence for at least 12 years before the start of the study, all of them had been treated for their alcohol dependence, and in the weeks before they were included in the programme they had been drinking around 26 Standard Drinking Units (SDU) per day. Severity of alcohol dependence for each group, as measured by the SADS, was severe. Scores on anxiety, depression, impulsivity, meaning of life and craving, as well as serum GGT were similar for each group. No significant differences between groups in terms of personal and family history were found.

Differences between groups during the treatment period (T0 vs T2)

As shown in Table 2, the number of subjects who had been taking naltrexone or disulfiram was similar in each group. The number of subjects who had relapsed was also similar in each group, although subjects in Group B had more months of accumulated abstinence during the treatment period, and in this group the number of times the patients had to restart detoxification treatment was significantly lower. Moreover, in this group a lower drop-out rate was also observed. Regarding scores on the psychological scales, the group that attended Mutual Help Associations, at the end of the treatment period (T2) had significant improvements in anxiety and meaning of life, compared to the group that had not attended these associations.

Differences between groups during the continuing care period (T2 vs T6)

During this period, drop-out rates were similar in each group (Fig. 1). Subjects who had attended Mutual Help Associations (Group B) during the continuing care period had significantly lower relapse rates and more months of accumulated abstinence (Table 3). Serum GGT at the end of the study (T6) was significantly lower in Group B. In addition, the number of times that the patients had to restart the treatment programme was significantly lower in this group. Moreover, the mean attendance at follow-up visits to the General Practitioner during the continuing care period was significantly higher in this group.

During this period, approximately a third of the sample in Group B had relapses for each year (38.82, 33.03, 29.46 and 30.35%) compared to the 60–70% in Group A (58.9, 63.15, 73.68 and 76.84%) (for each comparison, $P < 0.01$).

Regarding scores on the psychological scales, subjects in Group B experienced greater improvements in impulsivity, anxiety, depression and meaning of life compared to subjects in Group A.

Multiple regression: months of abstinence during the continuing care treatment

Variables which discriminated between the groups with a good prognosis (>36 months of accumulated abstinence during T2–T6, $n = 116$) and a bad prognosis (<35 months of accumulated abstinence during T2–T6, $n = 93$) were included in a regression model (following the ENTER method). These variables were the following: scores on the psychological scales for each patient during the T2 period (after discharged of the treatment programme), the therapeutic group (Group A vs Group B) and number of follow-up visits during the Primary Care follow-up period. Although they were not discriminative, the following variables were also included: age, gender and baseline score on the SADS.

As it can be seen in Table 4, five variables were included in the model (adjusted R square = 0.710, $F = 103.0$, gl = 5, $P = 0.001$): number of follow-up visits during the continuing care period, scores on the anxiety scale, belonging to the group that attended Mutual Help Associations, and scores on the impulsivity and meaning of life scales. Scores on anxiety and impulsivity scales negatively correlated with the number of months of accumulated abstinence, whereas there was a positive correlation with other variables.

DISCUSSION

Including Mutual Help Associations into the treatment programmes for alcohol dependence improved results related to alcohol consumption variables and psychological variables such as anxiety and meaning of life. During the continuing care period, which lasted 4 years, and which was carried out in the Primary Care sector, including these associations also improved adherence to the programme, as well as variables related to alcohol consumption and patients' psychological state (impulsivity, anxiety, depression and meaning of life).

Variables that predicted prognosis at the end of the 4-year follow-up period in the continuing care programme, determined by the months of accumulated abstinence, were the following: attendance at follow-up appointments, attendance at a Mutual Help Association, and scores on the anxiety, impulsivity and meaning of life scales at the beginning of the continuing care programme.

Table 1. Clinical BASELINE (T0) differences between patients included in the two treatment modalities

Variables	Group A Usual treatment ($N = 123$)	Group B Additional treatment at centres from the CAPA network ($N = 126$)	P
Age, mean (SD)	43.48 (7.79)	42.58 (8.93)	$T = 0.848$, gl = 247, $P = 0.39$, $d = 0.11$
Gender (males), *n* (%)	80	78	$X^2 = 0.264$, gl = 1, $P = 0.60$, CC = 0.03
Educational level (years of schooling)	15.10 (8.17)	14.93 (9.02)	$T = 0.821$,gl = 247, $P = 0.40$, $d = 0.02$
Professional activity unemployment, *n* (%)	25 (20.3)	22 (17.4)	$X = 0.32$, gl = 1, $P = 0.56$, CC = 0.04
Age of onset of alcohol consumption, mean (SD)	18.20 (5.75)	17.60 (6.94)	$T = 0.75$, gl = ,274 $P = 0.45$, $d = 0.09$
Years of progress of alcohol dependence, mean (SD)	12.75 (9.07)	12.64 (9.88)	$T = 0.083$, gl = 274, $P = 0.934$, $d = 0.01$
Family history of alcoholism, *n* (%)	38 (30.9)	44 (34.9)	$X = 0.45$, gl = 1, $P = 0.50$, CC = 0.04
Number of previous treatments for alcohol dependence, mean (SD)	1.07 (1.50)	0.83 (1.60)	$T = 1.213$, gl = 247,$P = 0.22$, $d = 0.15$
Previous relapses, mean (SD)	2.38 (0.81)	2.37 (0.98)	$T = 0.149$, gl = 247, $P = 0.88$, $d = 0.01$
Alcohol consumption			
Standard Drinking Units per day, mean (SD)	25.12 (10.34)	27.44 (11.67)	$T = 0.734$, gl = 247, $P = 0.42$, $d = 0.21$
Psychiatric comorbidity			
Depressive disorders, *n* (%)	21 (17)	23 (18.2)	$X^2 = 0.05$, gl = 1, $P = 0.80$, CC = 0.01
Anxiety disorders, *n* (%)	32 (26)	29 (23)	$X^2 = 0.29$, gl = 1, $P = 0.58$, CC = 0.03
Personality disorders, *n* (%)	19 (15.4)	22 (17.4)	$X^2 = 0.17$, gl = 1, $P = 0.67$, CC = 0.03
Baseline assessments			
Severity of Alcohol Dependence Scale (SADS), mean (SD)	29.45 (13.30)	32.60 (14.61)	$T = -1.77$,gl = 247, $P = 0.077$, $d = 0.23$
Barrat Impulsiveness Scale, mean (SD)	54.34 (10.73)	54.37 (12.04)	$T = -0.16$, gl = 247, $P = 0.987$, $d = 0.002$
Hamilton Anxiety Scale, mean (SD)	12.39 (7.00)	11.52 (4.99)	$T = 1.136$, gl = 247, $P = 0.257$, $d = 0.14$
Hamilton Depression Scale, mean (SD)	10.79 (7.16)	10.94 (7.37)	$T = -0.169$, gl = 247, $P = 0.866$, $d = 0.02$
The Meaning of Life Questionnaire, mean (SD)	39.09 (8.72)	38.74 (6.32)	$T = 0.364$, gl = 247, $P = 0.717$, $d = 0.05$
GGT levels, mean (SD)	56.60 (21.97)	54.64 (17.60)	$T = 0.541$, gl = 247, $P = 0.562$, $d = 0.10$
The Alcohol Craving Scale, mean (SD)	46.23 (17.15)	48.19 (20.57)	$T = -0.817$, gl = 247, $P = 0.415$, $d = 0.10$

Table 2. Differences in clinical and psychological variables between groups from baseline (T0) to the end of the treatment period (T2)

Variables	Group A Usual treatment (T0) ($N = 97$)	Group B Additional treatment at centres from the CAPA network (T0) ($N = 114$)	Group A Usual treatment ($N = 97$)	Group B Additional treatment at centres from the CAPA network ($N = 114$)	P
Gender (males), *n* (%)	–	–	64 (65.97)	70 (61.40)	$X = 0.473$, gl = 1, $P = 0.491$, CC = 0.05
Patients taking Naltrexone, *n* (%)	–	–	36 (37.11)	38 (33.33)	$X = 0.32$, gl = 1, $P = 0.56$, CC = 0.04
Patients taking Disulfiram, *n* (%)	–	–	52 (53.60)	54 (47.36)	$X = 0.81$,gl = 1, $P = 0.36$, CC = 0.06
Patients who relapsed during the 2-year treatment period, *n* (%)	–	–	47 (48.45)	58 (50.87)	$X = 0.123$, gl = 1, $P = 0.789$, CC = 0.02
Total months of abstinence, mean (SD)	–	–	16.23 (4.20)	18.79 (3.45)	$T = 2.02$, gl = 2009, $P = 0.04$, $d = 0.67$
Number of times the treatment programme had to be restarted due to relapse, mean (SD)	–	–	1.05 (1.51)	0.73 (0.81)	$T = 1.977$, gl = 209, $P = 0.049$, $d = 0.27$
Drop-outs during the treatment period, mean (SD)	–	–	26 (26.80)	12 (10.52)	$X = 6.49$, gl = 1, $P = 0.011$, CC = 0.17
Psychological assessments					
Barrat Impulsiveness Scale, mean (SD)	53.96 (11.994)	54.21 (12.561)	50.38 (10.34)	50.29 (10.66)	$F(1,208) = 0.166$, $P = 0.684$, Eta2 = 0.001
Hamilton Anxiety Scale, mean (SD)	12.68 (7.355)	11.51 (5.062)	11.74 (4.85)	12.32 (4.42)	$F(1,208) = 8.752$ $P = 0.003$, Eta2 = 0.040
Hamilton Depression Scale, mean (SD)	10.42 (6.916)	10.58 (7.315)	8.66 (3.46)	10.00 (4.65)	$F(1,208) = 3.009$ $P = 0.084$, Eta2 = 0.014
The Meaning of Life Questionnaire, mean (SD)	38.76 (8.794)	38.70 (6.382)	42.08 (7.22)	44.55 (7.54)	$F(1,208) = 6.859$, $P = 0.009$, Eta2 = 0.032
GGT levels, mean (SD)	52.89 (20.032)	52.46 (19.578)	53.25 (17.44)	55.10 (22.38)	$F(1,208) = 0.388$, $P = 0.534$, Eta2 = 0.002

In ANOVAS we have used the interaction value (factor X treatment group). CC = contingency coefficient; Eta2 = Square Eta; d = Cohen´s effect size.

Regarding the apparent improvement in outcomes related to including these associations in the therapeutic programme, our findings could be interpreted as a result of an additive effect, so that those subjects who attend more intervention programmes, as in Group B, would be the ones who would achieve more months of abstinence and fewer relapses. Other studies that have included subjects, who in addition to psychological therapy also attended AA, point out the effect of these groups in reducing the amount of alcohol consumed and in increasing the achievement of months of abstinence in the long-term (Weisner *et al.*, 2003; Humphreys *et al.*, 2004; Moos RH and Moos BS, 2004). However, this finding could also be explained by the combination of complimentary strategies: on one hand, those related with the therapeutic programme based on relapse prevention, and on the other, those related with the associations and based on acquisition of values. This last hypothesis would be supported by the significant increase in scores of the MLQ, especially for those who attended Mutual Help Associations. This finding is in line with other studies that have also pointed out that acquisition of new values (Krentzman, 2013) or increase of spiritual values typical of groups based on the 12 steps, have a role in the recovery from alcohol dependence (Tonigan *et al.*, 2013).

In respect of continuing care, groups in our study, after attending the continuing care programme for 4 years, reached abstinence rates of 48–85%. These percentages were within the range (39–99%) described in Lenaerts *et al.* (2014) review. In this review, 17–38.5% of the subjects relapsed during the first follow-up year, and in our study these percentages are clearly lower. Ferri *et al.* (2006) suggested that programmes based on the 12 steps are not efficacious in the continuing care period, but our results are not in agreement with this—perhaps because there are differences between 12-step programmes and the associations included in our study. An additional fact is that FACOMA's model differs from that of AA in actively relating to government and health institutions.

We highlight that attending mutual-help groups helped prevent re-admission to detoxification, something to be taken into account by health managers.

Regarding variables which were included in the regression model, studies of long-term prognosis found that impulsiveness, characterized by difficulties in the inhibition response ('impulsive action'), was associated with more frequent and earlier relapses (Stevens *et al.*, 2014; Czapala *et al.*, 2015; Rupp *et al.*, 2016), as are anxiety disorders (Wolitzky-Taylor *et al.*, 2011, 2015). Regarding anxiety, high scores on an anxiety scale our results are in line with Marlatt and Gordon's (1985) approach according to which anxiety is seen as a risk factor for relapse, since many patients use alcohol in order to reduce or face it, and impulsiveness hinders inhibitory responses towards alcohol consumption (Rubio *et al.*, 2008). Moreover, it has been suggested that anxious-impulsive traits could constitute endophenotypes linked to a higher vulnerability towards substance use due to its association to bigger difficulties in emotional regulation (Ersche *et al.*, 2012).

The schedule of visits in our study facilitated the detection of possible relapses during the first 2 years of follow-up (appointments were scheduled every 2 and 4 months, respectively, during T3 and T4). This schedule could help prevent protracted consumptions and reduce readmissions for detoxification. These findings are in line with approaches that other authors have made and according to which Primary Care Teams should be included in the continuing care of alcohol-dependent patients with several medical complications (Lieber *et al.*, 2003).

Table 3. Differences in scales and clinical variables from the moment of discharge (T2) to the end of the study (T6)

Variables	Group A Usual treatment (T2) ($N = 95$)	Group B Additional treatment at centres from the CAPA network (T2) ($N = 112$)	Group A Usual treatment (T4) ($N = 95$)	Group B Additional treatment at centres from the CAPA network (T4) ($N = 112$)	Group A Usual treatment (T6) ($N = 95$)	Group B Additional treatment at centres from the CAPA network (T6) ($N = 112$)	*P*
Gender (males), *n* (%)	–	–	–	–	62 (65.20)	68 (60.71)	$X = 0.45$, gl = 1, $P = 0.49$, CC = 0.05
Relapses during the follow-up, mean (SD)	–	–	–	–	2.72 (1.68)	1.27 (1.80)	$T = 5.93$, gl = 205, $P = 0.002$, $d = 0.83$
Months of abstinence during the continuum of care period, mean (SD)	–	–	–	–	29.41 (12.85)	41.58 (9.80)	$T = 7.702$, gl = 205, $P = 0.00$, $d = 1.08$
Number of treatments restarted during the follow-up, mean (SD)	–	–	–	–	273 (2.8 ± 1.51)	153 (1.36 ± 0.80)	$T = 2.27$, gl = 204, $P = 0.03$
Follow-up appointments in the Primary Care Setting, mean (SD)	–	–	–	–	4.31 (3.02)	7.75 (3.03)	$T = 8.14$, gl = 205, $P = 0.00$, $d = 1.14$
Psychological assessments							
Barrat Impulsiveness Scale, mean (SD)	50.38 (10.433)	50.29 (10.668)	48.77 (9.575)	45.54 (7.801)	48.78 (9.33)	45.02 (8.34)	$F = (1,204)$ 23.14, $P = 0.00$, Eta2 = 0.111
Hamilton Anxiety Scale, mean (SD)	11.74 (4.857)	12.32 (4.429)	10.88 (3.703)	8.93 (2.877)	14.83 (5.38)	11.71 (4.83)	$F = (1,204)$ 25.33, $P = 0.00$, Eta2 = 0.110
Hamilton Depression Scale, mean (SD)	8.66 (3.467)	10.00 (4.653)	9.06 (4.123)	8.83 (4.175)	9.99 (3.89)	7.94 (4.17)	$F = (1,204)$ 28.49, $P = 0.0$, Eta2 = 0.123
The Meaning of Life Questionnaire, mean (SD)	42.12 (7.198)	44.55 (7.549)	42.61 (6.231)	47.10 (7.868)	46.78 (6.59)	54.76 (8.05)	$F = (1,204)$ 16.07, $P = 0.00$, Eta2 = 0.073
GGT levels, mean (SD)	53.25 (17.445)	55.10 (22.388)	57.78 (20.848)	51.83 (21.152)	59.09 (21.21)	50.29 (22.75)	$F = (1,204)$ 25.47, $P = 0.00$, Eta2 = 0.111
Number of patients who relapsed during year 3, *n* (%)	–	–	–	–	56 (58.94)	39 (38.82)	$X = 12.04$, gl = 1, $P = 0.001$, CC = 0.23
Number of patients who relapsed during year 4, *n* (%)	–	–	–	–	60 (63.15)	37 (33.03)	$X = 18.72$,gl = 1, $P = 0.00$, CC = 0.29
Number of patients who relapsed during year 5, *n* (%)	–	–	–	–	70 (73.68)	33 (29.46)	$X = 40.20$ gl = 1, $P = 0.001$, CC = 0.40
Number of patients who relapsed during year 6, *n* (%)	–	–	–	–	73 (76.84)	34 (30.35)	$X = 44.47$ gl = 1, $P = 0.001$, CC = 0.42

In ANOVAS we have used the interaction value (factor *X* treatment group).

Table 4. Variables which were included in the lineal regression model in order to explain months of accumulated abstinence during the continuing care period

Variable	*B*	*B* error	Standardized beta	*t*	*P*	Confidence interval 95%
Number of appointments to the Primary Care Setting during the continuing care period	2.258	0.189	0.613	12.351	0.001	1.89–2.61
Scores on the Hamilton Anxiety Scale during T2	−0.468	0.118	−0.167	−3.979	0.001	−0.69–0.23
Group B	4.230	1.17	0.162	3.594	0.001	1.91–6.55
Barrat Impulsiveness Scale during T2	−0.133	0.046	−0.108	−2.690	0.008	−0.23–0.035
The Meaning of Life Questionnaire during T2	0.169	0.069	0.098	2.445	0.015	0.033–0.306

A variable associated with better prognosis during the treatment and continuing care period was the improvement in the scores on the MLQ. One of the sources of meaning of life is spirituality, and this point has been especially addressed in studies carried out with patients who attended groups based on the 12 steps. Kelly *et al.* (2011) and Tonigan *et al.* (2013) carried out follow-up studies with alcohol-dependent patients attending 12-step groups and both concluded that changes in the score of scales that assessed religiosity were correlated with abstinence achieved during the follow-up.

Likewise, Robinson *et al.* (2007) found that changes in meaning of life scores during outpatient treatment predicted alcohol consumption 6 months after the beginning of the treatment programme, with each unit of change on the Meaning of Life Scale related to an increase of a 3% in the likelihood of remaining abstinent. Also, using a subset of data from the MATCH Project, scores on meaning of life were found to be positively correlated with abstinence so that for each increase in one unit over the mean on the purpose on life, patients had a 2% greater chance of remaining sober after 12 months (Krentzman *et al.*, 2010). Promoting changes in values as an element for the recovery of subjects suffering from substance use disorder (SUD) is also mentioned by White (2007).

Several hypotheses explain the mediating effect of changes in values and recovery in alcohol dependence. Since religiosity is a core issue in the programme of AA (Tonigan *et al.*, 2013), most of the bibliography related to the impact of the change of values in the recovery of alcohol dependence has focused on it. On the contrary, there is a lack of research drawing attention to sense of life. Since Frankl (1982) we have seen the birth of positive psychology and reviews of the concepts and interventions of positive psychology in addictions (Krentzman, 2013) who specified that concepts such as 'the pleasant life, the engaged life and the meaning of life' could play an important role in the recovery of patients. Articles included in this review make reference to the role of spirituality, altruism and quality of life as predictors of the recovery of dependence in the long term.

Having a sense of purpose, and significance or goals in life have been associated with developing more coping skills in adverse situations and with a better physical and psychological state (Reker *et al.*, 1987). Although one of the sources of meaning of life could be spirituality, other values and goals have been highlighted (Maslow, 1970). If the purpose for life of a subject is raising a family, or having possessions, power or knowledge, this could motivate him/her towards changing behaviours in order to avoid discrepancies between his/her values and his/her actions (Miller and Rollnick, 2013).

Within Bandura's Social Learning Theory (Bandura, 1997), purpose for life subjects consider a group of alternative rewards to drugs use. From this theory's point of view drug use is a behaviour developed to improve the subjects' social skills. Thus, purpose in life could be used as a coping strategy (Miller *et al.*, 1996) and a protection in risky situations (Tonigan *et al.*, 2001). Kelly *et al.* (2011) suggest that religious practices and beliefs favour alternative and healthy responses when coping with stressful and aversive situations that in the past would have been associated to drug consumption. Robinson *et al.* (2007) point out that spiritual practices (but not beliefs) represented a benefit associated with 12 Steps Programmes. Religious actions and beliefs could ease a cognitive restructuration that could promote adaptive responses against stressful factors and negative emotions.

Other authors emphasize that sharing beliefs, values, rules and actions play a role in maintaining the belonging to social groups (Terry *et al.*, 2000). It seems reasonable to assert that spirituality, altruism and other values shared between those members who attend Mutual Help Groups provide a good setting for interpreting and attributing significance to situations, social relationships, expectations and mood states, all of which could favour recovery.

Within the limitations of this study we must consider that some of the result variables were obtained through self-reports. However, to partly avoid this limitation we used a structured interview and determined GGT levels. Another possible limitation refers to the type of coordination done with the Associations. In our case, the closeness to associations allowed us to attend them with a fortnightly frequency, but it is possible that in other places where the distance between the treatment centre and associations is bigger, it would be necessary to turn to other coordination strategies. The fact that FACOMA Red CAPA has a therapeutic programme available (www.facoma.org) has reduced the heterogeneity of group interventions, and consequently it is recommended to develop the same programme if this study is to be replicated.

ACKNOWLEDGEMENTS

To the Mental Health Regional Office of the Community of Madrid because they supported our initiative. To the Ex-alcoholics Federation of the Community of Madrid, and especially to his president, Mr Antonio Gonzalez Catena for his unconditional support for carrying out this study.

To Lundbeck's Laboratories because they sponsored the Villaverde Project in order to fund apprentices who participated in this project.

FUNDING

Project supported by Ministry of Health, Social Politics and Parity during 2010 according to the inter-territorial council of the SNS for the distribution of funds to the Autonomic Communities.

CONFLICT OF INTEREST STATEMENT

We have no conflict of interest.

REFERENCES

Alamo C, López-Muñoz F, Rubio G (eds). (2008) *Avances en Drogodependencias. Las Palmas de Gran Canaria*. GAFOS, 465–74.

American Psychiatric Association. (2000) *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. Washington, DC: American Psychiatric Association, Text rev.

Bandura A. (1997) *Self-efficacy: The Exercise of Control*. New York: Freeman.

Czapala M, Simon JJ, Richter B, *et al*. (2015) The impact of cognitive impairment and impulsivity on relapse of alcohol-dependent patients: implications for psychotherapeutic treatment. *Addict Biol* **21**:873–84.

EMCDDA. *Integration of Self-help Groups Belonged to the Federation of Alcoholics Rehabilitated as an Element of an Alcoholism Treatment Program Delivered in the Spanish Health Public System*. (http://www.emcdda.europa.eu/html.cfm/index52006EN.html?by=country&value=Spain)

Ersche KD, Turton AJ, Chamberlain SR, *et al*. (2012) Cognitive dysfunction and anxious-impulsive personality traits are endophenotypes for drug dependence. *Am J Psychiatry* **169**:926–36.

FACOMA (2016). Ayúdate-Ayúdanos. *Programa para pacientes y familiares de personas con problemas por el alcohol u otras drogas*. Ediciones MAPA, Madrid (www.facoma.org)

Ferri M, Amato L, Davoli M. (2006) Alcoholics Anonymous and other 12-step programmes for alcohol dependence. *Cochrane Database Syst Rev* **3**, DOI:10.1002/14651858.CD005032.pub2Art. No.: CD005032.

Frankl V. (1982) *Psicoterapia y humanismo*. Mexico: Fondo de cultura económica, 26–28.

Hamilton M. (1959) The assessment of anxiety states by rating. *Br J Med Psychol* **32**:50–5.

Hamilton M. (1967) Development of a rating scale for primary depressive illness. *Br J Soc Clin Psychol* **6**:278–96.

Humphreys K, Wing S, McCarty D, *et al*. (2004) Self-help organizations for alcohol and drug problems: toward evidence-based practice and policy. *J Subst Abuse Treat* **26**:151–8.

Humphreys K, Blodgett JC, Wagner TH. (2014) Estimation the efficacy of alcoholics anonymous without self-selection bias: an instrumental variables re-analysis of randomized clinical traial. *Alcohol Clin Exp Res* **38**:2688–94.

Jiménez M, Graña JL, Montes V, *et al*. (2009) Alcohol craving scale based on three factors. *Eur Addict Res* **15**:135–42.

Jurado-Barba R, Sion A, Álvarez-Alonso MJ, *et al*. (2017) Development of a screening test of cognitive impairment in alcoholic population: TEDCA. *ActasEspañolas de Psiquiatría* (in press).

Kadden R, Carroll K, Donovan D, *et al*. (1992) *Cognitive Behavioral Coping Skills Therapy Manual. A Clinical Research Guide for Therapists Treating Individuals With Alcohol Abuse and Dependence*. Rockville: National Institute on Alcohol Abuse and Alcoholism.

Kelly JF, Stout RL, Magill M, *et al*. (2011) Spirituality in recovery: a lagged mediational analysis of Alcoholics Anonymous' principal theoretical mechanism of behavior change. *Alcohol Clin Exp Res* **35**:454–63.

Kelly JF, Greene MC, Bergman BG. (2014) Do drug-dependent patients attending alcoholics anonymous rather than narcotics anonymous do as well? A prospective, lagged, matching analysis. *Alcohol Alcohol* **49**:645–53.

Kownacki RJ, Shadish WR. (1999) Does alcoholics anonymous work? The results from a meta-analysis of controlled experiments. *Subst Use Misuse* **34**:1897–1916.

Krentzman AR. (2013) Review of the application of positive psychology to substance use, addiction, and recovery research. *Psychol Addict Behav* **27**:151–65.

Krentzman AR, Robinson EA, Moore BC, *et al*. (2010) How alcoholics anonymous (AA) and narcotics anonymous (NA) work: cross-disciplinary perspectives. *Alcohol Treat Q* **29**:75–84.

Lenaerts E, Matheï C, Matthys F, *et al*. (2014) Continuing care for patients with alcohol use disorders: a systematic review. *Drug Alcohol Depend* **135**:9–21.

Lieber CS, Weiss DG, Groszmann R. (2003) Veterans affairs cooperative study of polyenylphosphatidylcholine in alcoholic liver disease: effects on drinking behavior by nurse/physician teams. *Alcohol Clin Exp Res* **27**: 1757–64.

Manning V, Best D, Faulkner N, *et al*. (2012) Does active referral by a doctor or 12-Step peer improve 12-Step meeting attendance? Results from a pilot randomised control trial. *Drug Alcohol Depend* **126**:131–7.

McKay JR, Sturmhöfel SH. (2011) Treating alcoholism as a chronic disease: approaches to longterm continuing care. *Alcohol Res Health* **33**:356–70.

McLellan AT, Lewis DC, O'Brien CP, *et al*. (2000) Drug dependence, a chronic medical illness: implications for treatment, insurance, and outcomes evaluation. *J Am Med Assoc* **284**:1689–95.

Marlatt A, Gordon J. (1985) *Relapse Prevention. Maintenance Strategies in the Treatment of Addictive Behaviors*. New York: The Guilford Press.

Maslow AH. (1970) *Motivation and Personality*, 3rd edn. New York: Harper& Row.

Meyers RJ, Miller WR. (2001) *A Community Reinforcement Approach to Addiction Treatment*. Cambridge, UK: Cambridge University Press.

Miller WR, Rollnick S. (2013) *Motivational Interviewing: Helping People Change*, 3rd edn. New York: Guilford Press.

Miller WR, Sorensen JL, Selzer JA, *et al*. (2006) Disseminating evidence based practices in substance abuse treatment: a review with suggestions. *J Subst Abuse Treat* **31**:25–39.

Miller WR, Westerberg VS, Harris RJ. (1996) Section IIB. Extensions of relapse predictors beyond high-risk situations. What predicts relapse? Prospective testing of antecedent models. *Addiction* **91**:S155–71.

Montes V, Urosa B, Rubio G, *et al*. (2006) Validación de la Escala sobre el Deseo de Beber—EDB. *Clín Salud* **17**:203–23.

Moos RH, Moos BS. (2004) Long-term influence of duration and frequency of participation in alcoholics anonymous on individuals with alcohol use disorders. *J Consult Clin Psychol* **72**:81–90.

Nalpas B, Boulze-Launay I, the Inserm Alcohol Group. (2017) Maintenance of abstinence in self-help groups. *Alcohol Alcohol* (in press).

NICE Clinical Guidelines (2011) No. 115. guidance.nice.org.uk. National Collaborating Centre for Mental Health (UK). Alcohol-Use Disorders: Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence. Leicester (UK): British Psychological Society. National Institute for Health and Clinical Excellence: Guidance.

Navarrete F, Rubio G, Manzanares J. (2016) *Manejo de los Trastornos por uso de Alcohol*. Mexico: Aerlex.

Oquendo MA, Baca-Garcia E, Graver R, *et al*. (2001) Spanish adaptation of the Barratt Impulsiveness Scale (BIS). *Eur J Psychiatry* **15**:147–55.

Patton JH, Stanford MS, Barratt ES. (1995) Factor structure of the Barratt impulsiveness scale. *J Clin Psychol* **51**:768–74.

Reker GT, Peacock EJ, Wong PT. (1987) Meaning and purpose in life and well-being: a life-span perspective. *J Gerontol* **42**:44–9.

Robinson E, Cranford J, Webb J, *et al*. (2007) Six month changes in spirituality, religiousness and heavy drinking in a treatment-seeking sample. *J Stud Alcohol Drugs* **68**:282–90.

Rubio G, Urosa B, Santo-Domingo J. (1998) Validación de la escala de la intensidad de la dependencia alcohólica. *Psiquiatría Biológica* **5**:44–7.

Rubio G, Martínez- Gras I, Ponce G, *et al*. (2013) Integration of self-guidance groups for relatives in a public program of alcoholism treatment. *Adicciones* **25**:37–44.

Rubio G, Jiménez M, Rodríguez-Jiménez R, *et al*. (2008) The role of behavioral impulsivity in the development of alcohol dependence: a 4-year follow-up study. *Alcohol Clin Exp Res* **32**:1681–7.

Rupp CI, Beck JK, Heinz A, *et al*. (2016) Impulsivity and alcohol dependence treatment completion: is there a neurocognitive risk factor at treatment entry? *Alcohol Clin Exp Res* **40**:152–60.

Sinclair JMA, Chambers SE, Manson CC. (2017) Internet support for dealing with problematic alcohol use: a survey of the soberistas online community. *Alcohol Alcohol* **52**:220–6. https://doi.org/10.1093/alcalc/agw078.

Sobell LC, Sobell MB, Riley DM, *et al*. (1998) The reliability of alcohol abusers' self-reports of drinking and life events that occurred in the distant past. *J Stud Alcohol* **49**:225–32.

Steger MF, Frazier P, Oishi S, *et al.* (2006) The Meaning in Life Questionnaire: assessing the presence of and search for meaning in life. *J Counsel Psychol* **53**:80–93.

Stevens L, Verdejo-Garcıa A, Goudriaan AE. (2014) Impulsivity as a vulnerability factor for poor addiction treatment outcomes: a review of neurocognitive findings among individuals with substance use disorders. *J Subst Abuse Treat* **47**:58–72.

Terry DJ, Hog MA, White KM. (2000) Attitude-behavior relations: social identity and group membership. In Terry DJ, Hogg MA (eds). *Attitudes, Behavior, and Social Context: The Role of Norms and Group Membership*. Mahwah, NJ: Lawrence Erlbaum Associates, 67–94.

Tonigan JS, Toscova R, Miller WR. (1996) Meta-analysis of the literature on alcoholics anonymous: sample and study characteristics moderate findings. *J Stud Alcohol* **57**:65–72.

Tonigan JS, Rynes KN, McCrady BS. (2013) Spirituality as a change mechanism in 12-step programs: a replication, extension, and refinement. *Subst Use Misuse* **48**:1161–73.

Tonigan JS, Miller WR, Connors GJ. (2001) The search for meaning in life as a predictor of alcoholism treatment outcome. In Longabaugh R, Wirtz PW (eds). *Project MATCH Hypotheses: Results and Casual Chain Analyses. NIAAA Project MATCH Monograph Series*, **Vol. 8**, Washington: Government Printing Office, 154–65. NIH Publication No. 01–4238.

Weisner C, DeLucchi K, Matzger H. (2003) The role of community services and informal support on five-year drinking trajectories of alcohol dependent and problem drinkers. *J Stud Alcohol* **64**:862–73.

Weisner C. (2001) Integrating primary medical care with addiction treatment: a randomized controlled trial. *J Am Med Assoc* **286**:1715–23.

White WL. (2007) The new recovery advocacy movement in America. *Addiction* **102**:696–703.

World Health Organization (WHO). (2011) *Global Status Report on Alcohol and Health*. Geneva, Switzerland: WHO.

Wolitzky-Taylor K, Operskalski J, Ries R, *et al.* (2011) Understanding and treating comorbid anxiety disorders in substance users: review and future directions. *J Addict Med* **5**:233–47.

Wolitzky-Taylor K, Brown LA, Roy-Byrne P, *et al.* (2015) The impact of alcohol use severity on anxiety treatment outcomes in a large effectiveness trial in primary care. *J Anxiety Disord* **30**:88–93.