

Motivational interviewing group at inpatient detoxification, its influence in maintaining abstinence and treatment retention after discharge

Grupo motivacional en unidad hospitalaria desintoxicación, su influencia en mantenimiento de la abstinencia y retención al tratamiento tras alta

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Abstract

The relapse rate after discharge from inpatient detoxification is high. The objective of this pilot study is to assess the sociodemographic, clinical and therapeutic factors associated with maintaining abstinence in patients who participated in a brief motivational interviewing group during admission for detoxification.

A total of 46 patients, diagnosed substance dependent according to DSM-IV, and admitted to the Hospital Detoxification Unit, participated in a brief motivational interviewing group. Sociodemographic, clinical, motivation to change (University of Rhode Island Change Assessment, URICA) and satisfaction with the treatment group (Treatment Perceptions Questionnaire, CPT) data were collected. Abstinence and treatment retention two months after discharge were assessed by weekly telephone calls. A survival analysis was performed. Being male, having more cognitions of the maintenance stage of change at discharge, being satisfied with group therapy and therapist during hospitalization are associated with longer abstinence after discharge. The brief motivational interviewing group approach with patients admitted for detoxification is related to greater likelihood of maintaining abstinence and subsequent treatment retention.

Key words: Motivational Interviewing, substance-related disorders, relapse, inpatient detoxification, group therapy.

Resumen

La tasa de recaída en el consumo al alta de una Unidad de Desintoxicación Hospitalaria es elevada. El objetivo de este estudio piloto es valorar los factores sociodemográficos, clínicos y terapéuticos asociados al mantenimiento de la abstinencia de pacientes que han participado en un grupo psicoterapéutico breve de corte motivacional durante su ingreso para la desintoxicación.

Un total de 46 pacientes con diagnóstico de trastorno por dependencia a sustancias, según DSM-IV, ingresados en Unidad de Desintoxicación Hospitalaria participaron en un grupo breve de corte motivacional. Se midieron variables sociodemográficas y clínicas, así como la motivación al cambio (University of Rhode Island Change Assessment, URICA) y la satisfacción con el tratamiento grupal (Cuestionario de Percepciones de Tratamiento, CPT). El mantenimiento de la abstinencia y la retención al tratamiento, dos meses tras el alta, se evaluaron mediante llamadas telefónicas semanales. Se realizó un análisis de supervivencia. Los resultados muestran que ser varón, tener cogniciones del estadio de mantenimiento del cambio al alta y tener una buena satisfacción con la terapia grupal y su terapeuta durante el ingreso, se asocia con mayor tiempo en abstinencia tras el alta.

El abordaje psicoterapéutico grupal breve de corte motivacional, en pacientes ingresados para la desintoxicación, se relaciona con mayor probabilidad de mantenimiento de abstinencia y de retención al tratamiento posterior.

Palabras clave: Entrevista Motivacional, trastorno por uso de sustancias, recaída, desintoxicación hospitalaria, terapia grupal.

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Addiction is a chronic and recurrent psychological disorder. The relapse rate after inpatient detoxification is very high (Santa Ana, Wulfert & Nietert, 2007). Six months after discharge, between 12.5% and 27.8% remain abstinent from various substances, rising to 32% in the case of cocaine (Grau-López et al., 2012; Shaw, Waller, Latham, Dunn & Thomson, 1998), while only 17.4% continue without consuming alcohol after one year (John, Veltrup, Driessen, Wetterling & Dilling, 2003).

Sociodemographic and clinical variables which have been linked to relapse include sex, living arrangements, education level, employment situation, legal record, family history of substance abuse, comorbidity with other mental disorders (dual diagnosis), the type of addictive substance, years of addiction, polydrug use, previous admissions or binge consumption prior hospitalization for detoxification. These variables may be indicators of the seriousness of the addiction (Arias et al., 2013; García Rodríguez et al., 2005; Goeb, Coste, Bigot & Ferrand, 2000; Grau-López et al., 2012; John et al., 2003; Márquez-Arrico & Adán, 2013; Schellekens, de Jong, Buitelaar & Verkes, 2014).

Low motivation to change is a further important factor which has been linked to post-discharge relapse (Loeber, Kiefer, Wagner, Mann & Croissant., 2009). To address this issue, motivational interviewing, developed by Miller and Rollnick (2002), focuses the treatment of addiction on raising the patient's internal motivation to change. Intervention with such a therapeutic focus has been linked to a reduction in substance abuse, a positive effect on the process of change and an improvement in treatment retention (Wagner & Ingersoll, 2012). The efficacy of a short version of motivational interviewing has also been demonstrated, and depends on the variables of the patient associated with the severity of the addiction, variables on which more research needs to be done (Vasilaki, Hosier & Cox, 2006).

Treatment retention is an important factor in preventing relapses, thus incorporating strategies to improve retention will improve the prognosis (NIDA, 2010). Nevertheless, low treatment retention is commonplace among patients with addictions (Chutuape, Katz & Stitzer, 2001), more so than with other mental disorders, (Wierzbicki & Pekarik, 1993). Rates of detoxification treatment take-up after discharge improve with the introduction of groups during hospitalization and group information at discharge (Frydrych, Greene, Blondell & Purdy, 2009).

In addition, satisfaction with the psychological treatment received during hospitalization is a further important factor in retention and subsequent abstinence, although the number of studies relating to this is limited (Ino, Saka, Yamashiro, Cho & Torituka, 2006).

For these reasons, inpatient detoxification should not be limited to pharmaceutical management, but should promote psychotherapeutic interventions which support abstinence maintenance and the continuation of post discharge treatment (Driessen, Veltrup, Junghanns, Przywara & Dilling, 1999; Myrick, Anton & Kasser, 2003, O'Farrell, Murphy, Alter & Fals-Stewart, 2008). However, not a great deal of research has been done on the introduction of therapy groups in detoxification units (Berman, Forsberg, Durbeej, Kallmen & Hermansson, 2010; John et al., 2003; Loeber et al., 2009; Santa Ana et al., 2007; Schilling, El-Bassel, Finch, Roman & Hanson., 2002; Stetter, Zahres, Batra & Mann, 1995).

The goal of this pilot study is, therefore, to describe which sociodemographic, clinical and therapeutic factors are associated with abstinence maintenance two months after follow-up in patients participating in a motivation group during hospitalization. We hypothesize that there are differences in the clinical and sociodemographic variables linked to abstinence. In terms of therapeutic variables, the hypothesis is that the greater the motivation to change when leaving hospital, and the greater the satisfaction with group therapy, the longer abstinence will last and the higher the likelihood of subsequent treatment retention.

Method

Study design

A descriptive longitudinal study of a two month follow-up period was carried out among 46 patients.

Participants

Of the 58 patients in the Hospital Detoxification Unit (HDU) of Vall d'Hebron University Hospital from May to September 2012 who were diagnosed with substance abuse disorders according to DSM-IV-TR criteria, 46 participated voluntarily in the therapeutic group and agreed to take part in the two month post-discharge follow-up (Figure 1). The patients signed the informed consent form, approved by the hospital ethics committee.

Patients who did not complete hospitalization, those who were participating in other research protocols (clinical trials), and those who declined to participate in the therapeutic groups or the study were excluded. Of the 46 subjects included, 43 completed the follow-up period.

Patients were not remunerated in any form for the data provided.

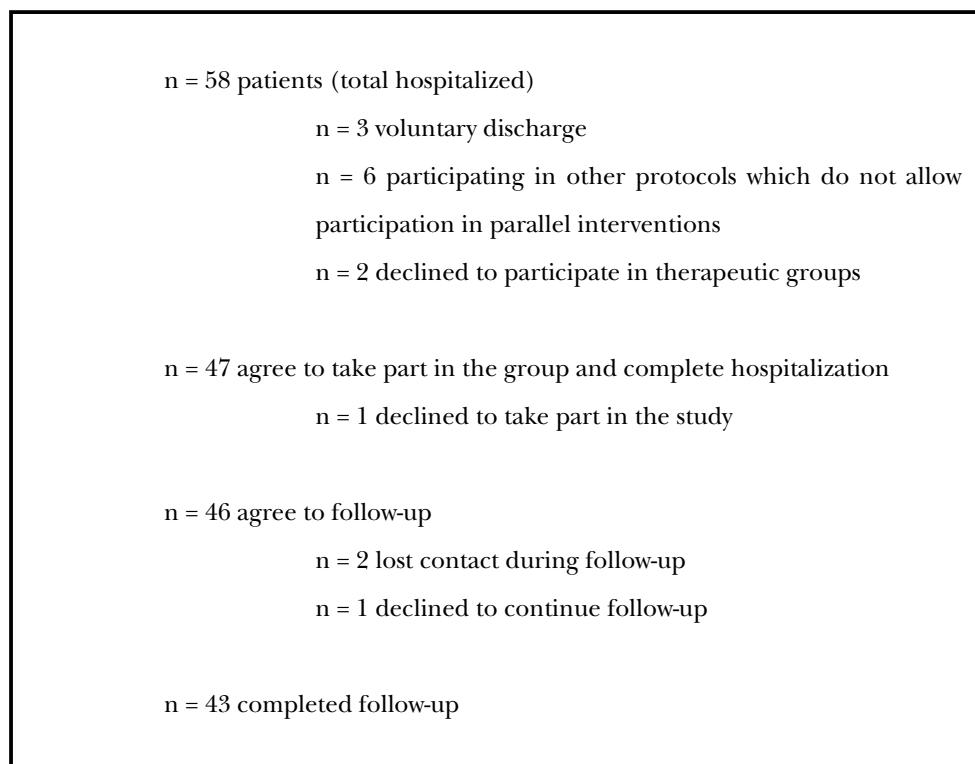


Figure 1. Study sample flow

Instruments

Therapeutic pre-group measures.

Ad-hoc registration design. Data were collected on sociodemographic (sex, age, nationality, living arrangements, education, employment situation, legal record) and clinical variables (family history of substance abuse, number of substances involved in current abuse or dependency, type of substance principally causing hospitalization, years of development of dependency on this substance, previous hospitalizations, whether for dependence or psychopathological destabilization, binge consumption prior to hospitalization).

To check for dual diagnosis, the following instruments were used:

- **SCID-I.** Structured interview for DSM-IV axis I disorders, in its Spanish adaptation (First, Spitzer, Gibbon & Williams, 1999).
- **SCID-II.** Structured clinical interview for DSM-IV axis II personality disorders, in its Spanish adaptation (First, Spitzer, Gibbon & Williams, 1999).

Therapeutic post-group measures.

URICA scale. A scale for the evaluation of change, Universidad of Rhode Island (McConaughy, Prochaska & Velicer, 1983); Spanish version by Rojas and Espinoza (2008). This instrument assesses to what extent the subject presents behaviors or cognitions of each state of change,

according to Prochaska and DiClemente's (1982) theory of change. It measures four subscales: precontemplation, contemplation, action, and maintenance. The higher the score, the greater one's own cognition of each stage. The Readiness to Change (RTC) score, obtained from the four previous, measures the global willingness of the individual to change. The scale has an acceptable internal consistency of 0.69-0.89 (McConaughy et al., 1983; McConaughy, DiClemente, Prochaska & Velicer, 1989).

TPQ. The Treatment Perception Questionnaire (Marsden et al., 1998), Spanish version (Mandersen et al., 2001). This is a short questionnaire with scores ranging from 0 to 40. It comprises two factors, with scores between 0 and 20: perception of the therapists and perception of the therapy. The higher the score, the more satisfied with the treatment. This instrument has an acceptable inter-class correlation of 0.57 in the Spanish sample (Mandersen et al., 2001).

Follow-up measures.

Self-reported information about abstinence and detoxification treatment retention carried out by weekly telephone calls over a two month period. The following criteria were used for each variable:

- **Abstinence from the substance principally causing hospitalization.** In terms of alcohol, abstinence was considered broken by drinking on five consecutive days, or by consuming more than five units of alcohol in one day (Vol-

picelli et al., 1997). For other substances, abstinence was considered broken when the patient admitted to consuming three times in one week or following a pattern similar to pre-admission (Grau-López et al., 2012).

- **Subsequent treatment retention**
- Having attended, or having appointments to attend treatment sessions, in at least six of the eight weeks of the telephone follow-up.

Procedure

While hospitalized in the HDU, patients followed pharmaceutical detoxification treatment. The psychiatrist prescribed decreasing doses of benzodiazepines down to their withdrawal for detoxification from each substance, as well as contributory pharmaceuticals to help treat comorbid symptoms. In some cases of addiction, specific medicines were also prescribed, such as antabuse o methadone.

Patients were informed about the nature of the study and were asked to participate in the brief therapy group. Declining to take part in the study did not prevent them from joining the group.

The psychotherapeutic treatment which was carried out is based on motivational interviewing (Miller et al., 2002; Wagner et al., 2012). The therapy's main aims were twofold: to raise motivation for abstinence maintenance after discharge, and to motivate subsequent treatment retention. Sessions lasted for 45 minutes, and took place three times a week. Group size varied from four to five participants. Groups were open, with sessions independent of each other and not limited by protocol in order to facilitate entry and exit of group members and adapt to the context of the hospital unit. If the therapist felt that a patient was not in a suitable condition owing to symptoms of intoxication or withdrawal, sedative effects of medicines, or as a negative consequence of a physical illness, they did not participate in the session. The role of the group leaders (a clinical psychologist in co-therapy with an internal resident psychologist) was to stimulate lively discussion of the topics brought up by the group itself. The psychotherapists have had standard training in motivational interviewing and wide-ranging experience in group therapy with drug addicts.

Patients were hospitalized in the HDU for an average of 12.2 days ($SD = 5.42$; range 5 - 36). The average number of motivational group treatment sessions was 4.07 ($SD = 2.45$; range 2 - 16).

We asked patients for their authorization to carry out pre-program, post-group, and two month post-discharge follow-up evaluations. At discharge, each was given a follow-up appointment at their reference health center. Evaluation during the follow-up phase consisted of a weekly telephone call for two months to assess whether they were keeping up abstinence from the principal substance, and whether they were continuing their treatment.

Statistical analysis

Firstly, the sociodemographic and clinical variables of the sample are described. For the analysis of how the sociodemographic, clinical and therapeutic variables are linked to post-discharge abstinence, the comparison of means is carried out using the Mann-Whitney U test for continuous variables. For categorical values, the chi-square test is used, except when at least one box displays an expected frequency of less than 5, in which case Fisher's correction is applied. Using the Pearson correlation, the possible associations between the variables resulting from this analysis are tested before including them in logistic regression, and the one with greatest effect size is chosen for Cohen's d . Logistic regression is run, with the forward stepwise inclusion of variables, to determine whether the variables associated with relapse do so independently. Finally, as a likelihood test the Cox model is applied, forward stepwise, to discover the predictive capacity of these factors for duration of abstinence.

Kaplan-Meier is used for the survival function. The statistical package SPSS 20.0 was used to analyze the data.

Results

The sociodemographic and clinical characteristics of the subjects participating in the study are described (Table 1). Average age is 44.9 years ($SD = 10.60$; range 25 - 68).

Table 1
Sample description (n=46). Sociodemographic and clinical variables

Sociodemographic variables	
Sex	
Male	58.7%
Female	41.3%
Living arrangements	
Alone	17.4%
With family	82.6%
Education	
Compulsory	69.6%
Higher	30.4%
Employment	
Working	8.7%
Unemployed	91.3%
Legal record [yes]	17.4%
Clinical variables	
Family history of substance abuse [yes]	73.9%
Dual pathology [yes]	71.7%
No. of substances currently dependent	
1	52.2%
2 or more (polydrug abuse)	47.8%
Substance type _a	
Depressant	78.3%
Stimulant	21.7%
Years of principal substance addiction development	[21.26, 10.45] (range, 3-50)
Previous hospitalizations _b [yes]	67.4%
Overdose prior to admission [yes]	50%

NOTES: ^a depending on its effect on the central nervous system; ^b whether for detoxification or psychopathological destabilization.

Table 2
Description of the variables associates with abstinence two months after discharge (n=43)

Sociodemographic and clinical variables				
	ABSTINENT n = 22	NOT ABSTINENT n = 21	Test	p
Sex				
Male	77.3%	38.1%	6.78 ^a	.009*
Female	22.7%	61.9%		
Dual pathology (yes)	81.8%	61.9%	2.12 ^a	.146
Polydrug abuse (yes)	54.5%	52.4%	0.20 ^a	1 ^b
Principal drug type (Depressive)	77.3%	85.7%	0.51 ^a	.698 ^b
Years of principal substance addiction disorder development	[22.14, 10.10]	[19.95, 11.01]	0.74 ^c	.458
Previous hospitalization (yes)	77.3%	57.1%	1.98 ^a	.159
Overdose prior to admission (yes)	22.7%	71.4%	10.24 ^a	.001*
Variables terapéuticas				
	ABSTINENT	NOT ABSTINENT	Test	p
URICA Post-Group				
Precontemplation	(15.81, 5.59)	(14.27, 3.37)	0.47 ^c	.641
Contemplation	(35.33, 2.90)	(33.60, 3.13)	1.49 ^c	.137
Action	(35.57, 3.68)	(33.27, 3.57)	1.81 ^c	.071
Maintenance	(32.86, 3.21)	(30.00, 4.14)	2.11 ^c	.035*
RTC	(11.01, 1.24)	(10.16, 1.53)	1.85 ^c	.064
TPQ				
Total	(31.24, 6.07)	(27.69, 5.99)	1.71 ^c	.088
Therapist	(15.57, 3.07)	(13.25, 3.45)	2.26 ^c	.024*
Therapy	(16.62, 2.97)	(14.44, 3.42)	2.04 ^c	.041*

NOTES: ^a Chi-square; ^b Fisher correction; ^c z scores; * (p < .05); URICA: University of Rhode Island Change Assessment; RTC: Disposition to Change; TPQ: Treatment Perception Questionnaire.

The sample is composed completely of Spanish nationals. Alcohol is the principal substance for 56.5%, cocaine for 21.7%, cannabis for 8.7%, heroin for 6.5%, methadone for 4.3% and benzodiazepines for 2.2%.

The scores obtained by the therapy participants on the TPQ's global scale have a mean of 29.35 (*SD* = 6.28), 14.52 (*SD* = 3.30) on the therapist subscale, and 15.32 (*SD* = 3.69) for therapy.

With regard to the principal substance causing their hospitalization, 48.8% of the patients relapsed after 2 months. The dependent variables of abstinence and subsequent treatment retention are linked. It is observed that 4.5% of abstinent patients abandon treatment, while this figure rises to 38.1% of those who relapsed. The difference is statistically significant ($X^2 = 7.31$, $p = .009$). Therefore, it is more likely at discharge from the HDU that those who maintain treatment retention will also continue abstinence, and vice-versa, while those who do not continue treatment subsequent to discharge are more likely to suffer a relapse.

Results of the bivariate analysis are described to determine the association with abstinence, sex (sociodemographic variable) and the clinical and therapeutic variables considered in the study (Table 2). Being female ($X^2 = 6.78$; $p = .009$) and taking an overdose prior to admission ($X^2 = 10.24$; $p = .001$) are significantly associated with relapse after two months.

With respect to therapeutic variables, having greater cognition of the stages of abstinence maintenance (maintenance scale), acquired in the HDU, significantly increases the likelihood of remaining abstinent over the

two months following discharge ($z = 2.11$; $p = .035$). In contrast to the global TPQ scale, where none are detected, significant results are found on both subscales separately. Given that the variables of satisfaction with the therapy and the therapist correlate with each other ($r = 0.59$ $p < .001$), both effect sizes are compared using Cohen's d ($d = 0.68$ for satisfaction with the therapy and $d = 0.71$ for the therapist). The second of these two variables is selected for the logistic regression. Multivariate analysis is run to determine if the variables associated with abstinence, bivariately at two months, do so independently.

Being male (Wald = 6.45, $p = .011$, OR = 0.015, 95% CI = 0.001 – 0.38), not taking an overdose prior to admission (Wald = 4.61, $p = .032$, OR = 0.52, 95% CI = 0.004 – 0.77), higher therapist satisfaction scores (Wald = 4.38, $p = .036$, OR = 0.60, 95% CI = 0.37 – 0.97) and higher scores on the URICA maintenance scale (Wald = 4.47, $p = .034$, OR = 0.69, 95% CI = 0.49 – 0.97) are associated independently with abstinence two months after discharge.

The Cox regression is applied to determine whether the above factors predict an increase in the length of time before relapse (Table 3).

Tabla 3
Modelo de Cox de permanencia de la abstinencia

Variable	Wald	OR	95% CI	p
Sex (Male)	7.18	0.20	0.06 - 0.65	.007
Maintenance stage	5.14	0.84	0.72 - 0.98	.023
Satisfaction with therapist	8.10	0.77	0.64 - 0.92	.004

NOTE: Sex (1 = varón; 2 = mujer)

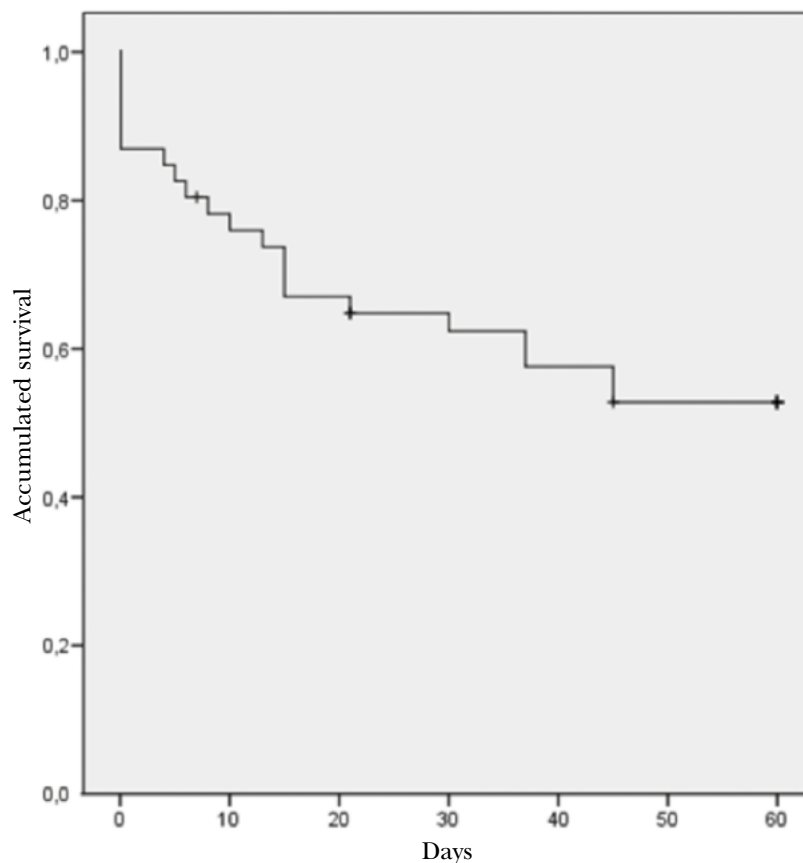


Figure 2. Kaplan-Meier estimator of survival function

The survival function is shown graphically in Figure 2. Being male reduces the risk of relapse by five times. Having greater cognition and more behaviors associated with the motivational stage of maintenance and high satisfaction with the group therapist also increases survival, controlling for other associated variables. Binge consumption of the principal substance of addiction prior to admission does not predict shorter survival time two months after discharge.

Discussion

Participation in therapeutic groups of a motivational type during hospitalization for detoxification is associated with positive effects on the likelihood of continuing abstinence and the retention of addiction treatment in a two month follow-up. Results show that being male, having more motivation to change (understood as cognitions of the maintenance stage) and greater satisfaction with the psychological treatment during hospitalization (with the motivational therapy or the therapist), is linked to a longer period before relapse after detoxification.

The data therefore suggest that a satisfactory experience while hospitalized favors subsequent abstinence and retention. There are not many studies on detoxification in this regard (Kornreich, Dan, Fryns, Gozlan

& Verbanck, 1992). Similar to our results, high rates of satisfaction with motivational therapy have also been found elsewhere (Borsari & Carey, 2000), which could be linked to motivational interviewing therapists being perceived as having the ability to empathize and listen (Vasilaki et al., 2006).

Furthermore, the results demonstrate that a greater post-treatment readiness to global change (RTC on the URICA scale) prior to discharge is not associated with a greater duration of abstinence. This finding has already been discussed by Diclemente, Carbonari, Zweben, Morrel & Lee (2001), who link it to the fact that self-evaluation with regard to potential post-treatment consumption may be optimistic, influenced by the restrictions and sense of security in a hospital ward. Therefore, this measure loses its predictive capacity in our context. Nevertheless, we find that a high score in the maintenance subscale is associated with abstinence, a result congruent with that of another earlier study (Henderson, Saules & Galen, 2004). Having said this, the influence of motivation to change on the efficacy of motivational interviewing, and how it mediates the change of behaviour, is not known (Berman et al., 2010; Dunn, Deroo & Rivara, 2001; Maisto et al., 2001; Vasilaki et al., 2006), thus highlighting the need for more research in this area.

One of the main aims of the therapeutic group was to motivate post-discharge retention. This may explain why detoxification treatment was continued by 73.9% of patients, an above average figure but in line with the good results obtained in other programs designed specially with the same goals (Sánchez et al. 2011; Secades-Vila, García-Rodríguez, Higgins, Fernández-Hermida, & Carballo, 2008), and those achieved by the introduction of motivational groups in detoxification units (Santa Ana et al., 2007). It is possible that retention is influenced by the weekly telephone call, although this was not the goal (McKay, Lynch, Shepard & Pettinati, 2005). In any case, it is an important result given that retention is a predictive factor in abstinence (Frydrych et al., 2009; Moggi, Ouimette, Moos & Finney, 1999; Secades Villa & Fernández Hermida, 2000; Vaillant, 1966) and highlights once again the need to introduce this type of motivational intervention with the aim of improving the prognosis for these patients.

In terms of results obtained concerning other variables linked to relapse, these indicate that women present greater problems in maintaining abstinence, matching the results found by Maehira et al., (2013). Nevertheless, future studies should be carried out with the aim of clarifying whether women really do suffer higher relapse rates (Tuchman, 2010).

In terms of the clinical variables examined, the majority, such as presenting dual diagnosis, having a family history of addiction, the length of addiction, previous hospitalizations, the type of substance, or a pattern of polydrug consumption, are not associated with a shorter duration of abstinence. These results are congruent with those found by Loeber et al., (2009), who discovered that the time until the first relapse was delayed independently of the length of the period of alcohol addiction, previous hospitalizations and sex of those who participated in the group therapy during their hospital stay. Nevertheless, in contrast with the results found by these authors, the present study has found that sex does have a link to abstinence duration.

Although by itself it does not predict a shorter period of abstinence, overdosing was the only clinical variable which was linked to relapse two months after detoxification. The results of an earlier study (Grau-López et al., 2012) are confirmed, which described this link after six months. However, it appears that the association is not maintained in longer follow-ups, at least in the case of alcoholism (Monrás Arnau, Gual Solé, Freixa & Lligoña, 2004).

This preliminary study is subject to various limitations which should be taken into account. First of all, no control group was used to determine if the results obtained in terms of motivation at discharge, treatment retention, and subsequent abstinence are due to par-

ticipation in group therapy. Nevertheless, the relapse rate among motivational group participants (48,8%) was found to be similar to that discovered by Loeber et al. (2009) two months after discharge: 42,4% in comparison with the control group's 68,3%. Furthermore, due to the small sample size and a high percentage of females included, it is difficult to generalize to the population of substance abusers, which is normally distributed with a greater proportion of males (EMCDDA, 2012). As an open therapeutic group, it was not possible to limit the sessions by protocol, although this more flexible format allowed the treatment to be adapted to the context of the unit with constant new entries and discharges. Another possible limitation is that laboratory parameters were not used in measuring abstinence owing to data protection regulations since patients belong to different centers; nevertheless, it has been found in other studies that these parameters do not add greater veracity to the information (Babor, Steinberg, Anton & Del Boca, 2000).

This study provides different contributions. Firstly, as far as we are aware, this is the first to evaluate the level of satisfaction with motivational-type groups and with the therapist, and how this is related to post-treatment. It is, furthermore, a study with high ecological validity, given that it is a group intervention, applicable in a clinical detoxification context with a heterogeneous group in terms of sex, age, and principal substance.

Different lines of research can be derived from these results. As well as measuring emotional state, future studies should also consider more implicit cognitive aspects, for example nuclear beliefs about addiction (Martínez González & Verdejo García, 2012).

In addition, the most basic components of satisfaction with the therapy or the therapist and their influence on the efficacy of psychological treatment of drug addicts should be investigated to enable improvements to be made in such interventions.

Finally, these data have relevant clinical implications, since they show the importance of offering psychological treatment in addition to pharmaceutical treatment from the first stages of intervention with addicts in order to improve their efficacy (Berner et al., 2008; Loeber et al., 2009; Stetter & Mann, 1997).

In conclusion, aspects related to motivational-type group intervention, such as satisfaction with therapist and therapy, and having cognitions at discharge associated with maintaining abstinence, operate as protective factors, since they are associated with longer abstinence after admission.

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Conflict of interests

There are no conflicts of interest.

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