

COMORBIDITY OF ALCOHOL DEPENDENCE AND PERSONALITY DISORDERS: A COMPARATIVE STUDY

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Abstract — Aims: To describe the frequency and profile of personality disorders related to alcohol dependence, and to compare them with non-addictive disorders and with normal population. **Methods:** In this cross-sectional clinical-epidemiological study, using the *International Personality Disorder Examination* and the *Millon Clinical Multiaxial Inventory-II* for personality disorders, 158 consecutively recruited alcohol-dependent patients attending a psychiatric outpatient clinic were compared with 120 consecutively recruited psychiatric patients with non-addictive disorders, and 103 subjects from the general population chosen to match the patient samples for age, gender and socioeconomic level. **Results:** Of the alcohol-dependent patients, 44.3%, and of the general clinical sample, 21.7% (vs 6.8% of the normative sample) showed at least one personality disorder. Obsessive-compulsive personality disorders were most prevalent (12%), followed by antisocial, paranoid and dependent personality disorders (7% each). Most of them showed only one personality disorder.

INTRODUCTION

Alcohol abuse and dependence are among the most prevalent mental disorders in the general population. According to a nationally representative sample survey of youth and adults in Spain, alcohol abuse has affected about 7–10% (roughly 3 million people) of the population (Echeburúa *et al.*, 2005). Nearly half of them will become alcoholics in the near future. This problem obviously is a significant public health challenge.

In spite of growing interest in alcohol related issues, it remains difficult to accurately define the relationship between personality disorders (PDs) and alcohol dependence. The reported prevalence of PDs in alcoholics ranges from as low as 22–40% (Zimmerman and Coryell, 1989; Powell and Peveler, 1996; Driessen *et al.*, 1998; Pettinati *et al.*, 1999; Grant *et al.*, 2004; Echeburúa *et al.*, 2005; Fernández-Montalvo *et al.*, 2006) to as high as 58–78% (DeJong *et al.*, 1993; Nurnberg *et al.*, 1993; Morgenstern *et al.*, 1997; Fernández-Montalvo *et al.*, 2002). A meaningful comparison of prior and more current data in reported prevalence studies is difficult to make because of large discrepancies.

Similarly, the number and types of PDs found in the literature are very heterogeneous. The most prevalent in the clinical trials have been dependent and histrionic (DeJong *et al.*, 1993; Grant *et al.*, 2004); dependent, paranoid and obsessive-compulsive (Echeburúa *et al.*, 2005); paranoid (Nurnberg *et al.*, 1993); borderline (Powell and Peveler, 1996); antisocial (Grant *et al.*, 2004; Morgenstern *et al.*, 1997); narcissistic and avoidant (Pettinati *et al.*, 1999); and avoidant and borderline (Fernández-Montalvo *et al.*, 2006). Thus, the available current data are inconsistent and not conclusive. Furthermore, the average number of PD diagnoses is generally 1.8–4, with an extensive overlap among PDs themselves (Driessen *et al.*, 1998; DeJong *et al.*, 1993).

The diagnostic disparity and the lack of consistency in the literature with respect to the prevalence, the number and the types of PDs associated with alcohol dependence are likely related to the assessment tools (questionnaires, interviews, etc.), to the severity of alcoholism considered (abuse or dependence) and to the mental health settings (inpatients or outpatients) (Sher *et al.*, 1999).

In a prior exploratory study with a quite small sample, PD diagnoses were analysed in a sample of male alcoholics (Echeburúa *et al.*, 2005). Extending this area of research with a larger sample size of male and female patients, the main aims of this study were, first, to find out if the frequency and profile of PDs among treatment-seeking alcoholics were different from normal population and from non-addicted patients who sought treatment for another Axis I mental disorder. Second, to compare the concordance between two well-known tools for assessment of PDs: a semi-structured diagnostic interview (*International Personality Disorders Examination, IPDE*) (Loranger, 1995) and a self-report (*Millon Clinical Multiaxial Inventory, MCMI-II*) (Millon, 1997). Our main hypothesis is that PDs are more prevalent among alcoholics than among other diagnostic groups or among the general population.

METHOD

Participants

The sample for this cross-sectional clinical-epidemiological study consisted of 381 subjects (158 alcohol-dependent subjects, 120 clinical patients affected by mental disorders other than addictions and psychosis and 103 normal subjects from the general population). This sample did not include the patients and subjects described in our previous exploratory study (Echeburúa *et al.*, 2005).

All patients were drawn from attenders at the psychiatric outpatient clinic of the Psycho-organic Medicine Clinic (Bilbao, Basque Country, Spain). Normal subjects were found among workers at a university (clerks; $N = 46$) and in a

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Table 1. Socio-demographic characteristics of the sample

Variables	Alcohol- dependent group <i>N</i> = 158	Clinical control group <i>N</i> = 120	Normative control group <i>N</i> = 103	<i>F</i>
	X (range)	X (range)	X (range)	
Age	43.42 (19–65)	40.58 (18–65)	40.73 (24–64)	2.353
	<i>N</i> (%)	<i>N</i> (%)	<i>N</i> (%)	χ^2 (<i>df</i>)
Sex				
Men	103 (65.2)	64 (53.3)	55 (53.4)	5.319 (2)
Women	55 (34.8)	56 (46.7)	48 (46.6)	
Marital status				
Single	57 (36.1)	55 (45.8)	31 (30)	32.402 (2)***
Married	61 (38.6)	47 (39.2)	67 (65)	
Divorced	32 (20.3)	12 (10)	4 (3.9)	
Widowed	8 (5.1)	6 (5)	1 (1)	
Education				
None	7 (4.4)	4 (3.3)	10 (9.7)	
Primary studies	41 (25.9)	33 (27.5)	22 (21.4)	9.118 (2)
Secondary studies	63 (39.9)	49 (40.8)	32 (31.1)	
University	47 (29.7)	34 (28.3)	39 (37.9)	
Socio-economic status				
Middle-low	18 (11.4)	19 (15.8)	12 (11.7)	2.940 (2)
Middle	111 (70.3)	77 (64.2)	76 (73.8)	
Middle-high	29 (18.4)	24 (20)	15 (14.6)	

*** $P < 0.001$.

canning factory ($N = 57$). The most significant demographic characteristics of the total sample are presented in Table 1. Patients and non-patients gave their informed consent to take part in the study, and the response rate was 100%.

The alcohol-dependent group ($N = 158$) was recruited from consecutive attenders >18 years of age who met the diagnostic criteria of *DSM-IV-TR* (American Psychiatric Association, 2000) for alcohol dependence. All of them were seeking treatment for problems related to drinking. A primary diagnosis of alcohol dependence was required to be included in the clinical trial.

The clinical 'control' group ($N = 120$), also >18 years of age, was chosen consecutively from non-addicted subjects seeking treatment for various mental disorders, such as major depression, generalized anxiety disorder, panic disorder and adaptive disorder.

The normative group ($N = 103$) was made up of people without Axis I mental disorders, who were encouraged to participate in this study by giving them feedback on their personality test results. The participants were selected to match the clinical groups in terms of age, gender and social class, the clinical groups having by chance turned out to be reasonably matched on these measures.

Assessment measures

The *Structured Clinical Interview* is used to assess, in an initial interview, mental disorders according to diagnostic criteria of *DSM-IV-TR*. The content of the interview is related to the information most relevant to this study: current difficulties, current mental disorders, antecedents, family, education, work, social relationships, alcohol and drug abuse, hobbies, etc.

Two personality assessment tools were used. The *MCMI-II* (Millon, 1997; TEA, 2000) is a self-report questionnaire with 175 true/false items. Thirteen clinical scales assess personality patterns that relate to *DSM-III-R* Axis II disorders. There are ten clinic personality pattern scales (schizoid, avoidant, dependent, histrionic, narcissistic, antisocial, aggressive-sadistic, compulsive, passive-aggressive and self-defeating), as well as three severe personality pathology scales (schizotypal, borderline and paranoid).

Raw scores on scales were weighted and converted to base rate scores. The base rate scores reflect the prevalence of a particular PD. According to the conservative criteria of Weltzler (1980), a base rate score >84 is considered to be significant. Although the *MCMI-II* offers good internal consistency, it has only moderate accuracy for assigning patients to diagnostic groups across a variety of clinical criteria.

The *IPDE* (Loranger, 1995; López-Ibor *et al.*, 1996) is a semi-structured diagnostic interview designed to assess PDs. The *IPDE* covers all criteria for the 11 Axis II disorders of *DSM-IV*. In order to establish reliable diagnoses, the behaviour or trait must be present for at least 5 years and the criterion must be met before the age of 25 years. A self-administered *IPDE* screening questionnaire is available before the interview to assist in identifying PDs that might be of focus in the interview. Inter-rater reliability of the *IPDE* (median kappa = 0.73), as well as test-retest reliability (median = 0.87) (Blanchard and Brown, 1998), is generally good.

Procedure

Once all participants were selected according to the previously indicated criteria, the pre-treatment assessment was

Table 2. Axis I mental disorders in the clinical groups

Mental disorder	Alcohol-dependent group (<i>N</i> = 158) <i>N</i> (%)	Clinical control group (<i>N</i> = 120) <i>N</i> (%)
Major depression	24 (15.2)	26 (21.7)
Dysthymic disorder	5 (3.2)	9 (7.5)
Bipolar disorder	6 (3.8)	1 (0.8)
Panic disorder	16 (10.1)	16 (13.3)
Generalized anxiety disorder	12 (7.6)	17 (14.2)
Obsessive-compulsive disorder	1 (0.6)	6 (5.0)
Adaptive disorder	2 (1.3)	15 (12.5)
Somatization disorder	2 (1.3)	4 (3.3%)
Pathological gambling	2 (1.3)	6 (5.0)
Eating disorder	0	2 (1.7)
Psychotic disorder	2 (1.3)	11 (9.2)
None	86 (54.4)	7 (5.8)
Total	158 (100)	120 (100)

conducted in two sessions. In the first session, data related to psychopathological characteristics were collected and the *MCMI-II* and the *IPDE* screening test were carried out. In the second session, the PDs identified in the previous *IPDE* screening test were accurately assessed with the *IPDE* interview. The time between assessments was 1 week. Alcohol-dependent patients were abstinent before the first interview for at least 2 weeks. All assessments were made between 2003 and 2006.

In order to control the inter-rater reliability, a clinical psychologist (the second author) and a psychiatrist (the third author) sat in on the same interview and provided independent ratings for each subject. Using the structured clinical interview and the *IPDE*, they were able to give a clinical diagnosis of both alcohol dependence/other mental disorders and PDs. The degree of agreement between the professionals, with respect to the diagnosis of alcoholism/other mental disorders, was 100%. The inter-rater reliability for PDs in the joint interview was quite high ($\kappa = 0.81$).

In this study, the following data were analysed: (i) the overall prevalence rate of PDs among the different samples; (ii) the PDs profile among the different groups.

Parametric (*t*-test and ANOVA) and non-parametric tests were used for statistical analysis. All comparisons between groups were analysed using the Kruskal-Wallis *H*-test. The Mann-Whitney *U*-test was used as a *post-hoc* procedure.

RESULTS

Prevalence rates of Axis I diagnoses, with a duration of at least 3 months, are given for both the clinical samples in Table 2. GAF scores mean was 43.97 (SD = 7.48) for the experimental group and 45.35 (SD = 6.70) for the clinical group, with no significant statistical differences ($t = 0.112$).

Prevalence rates of PDs are reported with respect to both instruments and, in addition, the 'combined' rates. According to this last criterion, 44.3% of the clinical sample of alcoholics and 21.7% of the general clinical sample (vs 6.8% of

Table 3. Rates of personality disorders according to the *IPDE* and the *MCMI-II*

	IPDE + MCMI-II ^a <i>N</i> (%)	IPDE <i>N</i> (%)	MCMI-II <i>N</i> (%)
Alcohol-dependent subjects (<i>N</i> = 158)	70 (44.3)	90 (57)	141 (89.2)
Clinical controls (<i>N</i> = 120)	26 (21.7)	36 (30)	106 (88.3)
Normative controls (<i>N</i> = 103)	7 (6.8)	7 (6.8)	69 (67)
Total	103 (27)	133 (34)	316 (82)
X^2 (<i>df</i>)	46.904*** (2)	70.730* (2)	25.351*** (2)

* $P < 0.05$.

*** $P < 0.001$.

^a To be included in this group, patients need to be diagnosed of the same PDs with both instruments.

the normative sample) showed at least one PD. A comparison between groups in the overall prevalence rate of PDs showed statistically significant differences ($X^2 = 46.904$, $df = 2$; $P < 0.001$). PDs were more frequently diagnosed in alcoholics than in the other groups (Table 3).

The most prevalent PDs, among the alcoholics, were obsessive-compulsive PD (12%), followed by antisocial, paranoid and dependent PDs (7% each), narcissistic (6.3%) and finally borderline and histrionic PDs (5.1% each). In comparison, the most frequently diagnosed PDs among the non-addicted patients were obsessive-compulsive PD (9.2%), dependent PD (6.7%), followed by paranoid PD (4.2%). Lastly, in the normative control group, the most prevalent PDs were obsessive-compulsive and histrionic PD (1.9% each). There were statistically significant differences among the different groups. Antisocial, borderline, histrionic and narcissistic PDs were more associated to alcohol-dependent subjects than to any other group (Table 4).

With respect to the three clusters of PDs, the presence of cluster B and C was higher among the alcoholics ($N = 30$, 19%; $N = 34$, 21.5%, respectively) than in the clinical group ($N = 5$, 4.2%; $N = 16$, 13.3%) and in the normative group ($N = 3$, 2.9%; $N = 3$, 2.9%). These differences were statistically significant ($X^2 = 24.523$, $df = 2$; $P < 0.001$; $X^2 = 18.074$, $df = 2$; $P < 0.001$).

Regarding the number of PDs shown by individual patients, one PD was the most frequent. There were only 24 patients in both clinical groups (9%) and none in the normative control group who showed two or more PDs. There were statistically significant differences between the clinical and the normative groups ($X^2 = 52.461$, $df = 2$; $P < 0.001$).

The concordance between the *IPDE* and the *MCMI-II* to assess PDs was very low in both clinical groups ($\kappa = 0.133$ in alcohol-dependent subjects group; $\kappa = 0.082$ in clinical controls) and in the normative group ($\kappa = 0.069$).

DISCUSSION

A strength of our design was the inclusion of both a clinical control group and a normative control group and the diagnosis of PDs with two specific assessment tools

Table 4. Frequency and profile of PDs in the different groups in *IPDE + MCMI-II*

Personality disorders	Alcohol-dependents N = 158		Clinical controls N = 120		Normative controls N = 103		χ^2 (df)
	N	%	N	%	N	%	
Paranoid	11	7	5	4.2	1	1	5.286 (2)
Schizoid	4	2.5	4	3.3	0	0	3.241 (2)
Schizotypal	1	0.6	1	0.8	0	0	0.797 (2)
Histrionic	8	5.1	0	0	2	1.9	7.099* (2)
Antisocial	11	7	2	1.7	0	0	10.790** (2)
Narcissistic	10	6.3	2	1.7	1	1	7.051* (2)
Borderline	8	5.1	2	1.7	0	0	6.884* (2)
O-Compulsive	19	12	11	9.2	2	1.9	8.375* (2)
Dependent	11	7	8	6.7	1	1	5.207 (2)
Avoidant	4	2.5	3	2.5	0	0	2.642 (2)
Non-specified	5	3.2	4	3.3	0	0	3.424 (2)
Total ^a	70	44.3	26	2.7	7	6.8	46.904*** (2)

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$.

^a Note: There are patients who can show more than one PD and so the total number does not exactly correspond to the addition of the partial numbers.

(*MCMI-II* and *IPDE*), even though the diagnostic approaches are not exactly the same. In addition both categorical and dimensional approaches for PDs were considered. These features distinguish this study from much of the previous literature.

One limitation in this study is that a different result might be found in a sample of alcohol-dependent people drawn from the general population. In addition, the participants only represented the alcohol-dependent patients in outpatient treatment. This study does not deal with the homeless or people belonging to a lower class with many psychosocial problems (no job, no partnership, no home, etc.) who in Spain tend to underutilize health care resources. This study relates to more integrated patients, though it includes some with severe alcohol dependence. The advantage of this approach is that it is possible to study alcoholism in itself, independently from social deprivation.

The most salient finding is that 44.4% of the alcoholics met *IPDE + MCMI-II* diagnostic criteria for a PD compared to 21.7% of the non-addicted patients and 6.8% of the normative controls. Previous studies found that PDs were very common in alcoholics (DeJong *et al.*, 1993; Nurnberg *et al.*, 1993; Powell and Peveler, 1996; Morgenstern *et al.*, 1997; Driessen *et al.*, 1998; Pettinati *et al.*, 1999; Grant *et al.*, 2004; Fernández-Montalvo *et al.*, 2006). The contribution in this study is in showing that the high rate of comorbidity with PDs is different from and much higher in alcohol dependence than in other Axis I mental disorders, such as mood and anxiety disorders.

With respect to the types of PDs, the most prevalent PD in all groups was obsessive-compulsive. Antisocial, borderline, histrionic and narcissistic PDs were more associated to alcohol-dependent subjects than to other groups. Unlike other studies, where the average number of PD diagnoses is generally 2–4 (DeJong *et al.*, 1993; Driessen *et al.*, 1998), the average number of diagnosed PDs for each subject in our study was one.

These findings are consistent with those found by other studies (Driessen *et al.*, 1998; Fernández-Montalvo *et al.*, 2006), but not with others, in which the prevalence rates of PDs in alcoholics were higher (Nurnberg *et al.*, 1993; DeJong *et al.*, 1993). The lack of consistency with our study findings could be related to our sample (drawn only from outpatients) or to the different assessment tools (*IPDE* and *MCMI-II* together) used in our study to diagnose a PD. The accuracy of the self-reports, such as *MCMI*, by themselves can be expected to be poor, the kappa index between both instruments showing a very low concordance, according to other studies (Fernández-Montalvo *et al.*, 2006).

The main difference between alcoholics and non-addicted patients was that the alcoholics showed two times more PDs than the latter. In turn, non-addict patients showed nearly three times more PDs than the subjects of the normative control group. With respect to the clusters of PDs, the presence of clusters B and C was higher among alcoholics than in the clinical and normative groups.

These new findings validate our approach in the previous pilot study (Echeburúa *et al.*, 2005), but also are slightly different. In both studies, there was a high comorbidity of alcohol dependence with PDs (about 40–44%), which was much higher than in other Axis I mental disorders, and the average number of diagnosed PDs for each subject was one. The main difference of this study with the presented data in our 2005 paper is that now, with a much larger sample, we were able to point out PDs specifically associated to alcohol-dependent subjects. That was not possible in our previous study, restricted to a quite small sample of only male alcoholics.

Further research should take into account other relevant variables related to alcohol dependence. These specific instruments (*IPDE* and *MCMI*) do not detect features of the patients who are related to alcohol dependence. That is the case, for example, of interpersonal relationships, which are often damaged due to drinking among patients who had previously good

relationships. Structured interview should pay attention to this relevant area.

This study has both theoretical and applied implications. The accurate understanding of PDs in alcoholics could help to guide further research regarding treatment decisions according to the patient's personality pattern. Dimensional approaches to PD diagnosis could yield more accurate information (Ullrich *et al.*, 2001). And, finally, specific gender differences should be dealt with in further research in order to test some preliminary conclusions (obsessive-compulsive, histrionic, schizoid and antisocial PDs, more frequent in alcoholic women; dependence, more frequent in alcohol-dependent men) (Grant *et al.*, 2004).

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