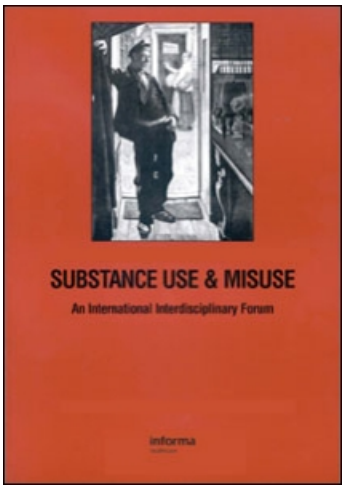

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Substance User Personality Disorders: Pilot Study

Personality Disorders Among Alcohol-Dependent Patients Manifesting or not Manifesting Cocaine Abuse: A Comparative Pilot Study

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This study assessed personality disorders (PDs) in 158 alcohol-dependent outpatients (62 manifesting cocaine abuse and 96 without cocaine abuse) with the International Personality Disorders Examination interview between 2003 and 2006. Thirty-nine alcohol-dependent/cocaine abusers (62.9% of this group) and 51 only alcohol-dependent patients (53.1% of this group) manifested at least one PD. There were no statistically significant differences between groups in the overall prevalence rate of PDs. The most prevalent PDs, among the alcohol-dependent/cocaine abusers, were antisocial (21%), narcissistic (14.5%), and borderline (11.3%) PDs. The most frequently diagnosed PDs among the only alcohol-dependent patients were obsessive–compulsive (20.8%), paranoid (10.4%), and dependent (9.4%) PDs. There were significant differences between the groups. The study limitations are discussed.

Keywords personality disorders; alcohol dependence; cocaine abuse

Introduction

Studies in both population- and clinic-based settings document a higher prevalence of personality disorders (PDs) among people manifesting substance use disorders than among the general population and even than among the patients affected by Axis I mental disorders other than addictions (Echeburúa, Bravo de Medina, and Aizpiri, 2005, 2007; Fernández-Montalvo and Echeburúa, 2004; Grant et al., 2004).

Evidence to date suggests that over half of the substance users seeking treatment will meet criteria for one or more PDs (Driessen, Veltrup, Wetterling, John, and Dilling 1998; Grant et al., 2004; Echeburúa et al., 2005; Fernández-Montalvo, Landa, López Goñi, and Lorea, 2006; Pettinati, Pierce, Pierce, Belden, and Meyers, 1999; Powell and Peveler,

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[1]The journal's style utilizes the category *substance abuse* as a diagnostic category. Substances are used or misused; living organisms are and can be *abused.* Editor's note.

1996; Zimmerman and Coryell, 1989). In these reviews, estimates of prevalence of any PD diagnosis range from 34% to 100%, so a high prevalence of PDs among people manifesting substance use disorders is a consistent finding (Welch, 2007). 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 antisocial and borderline PDs. Furthermore, the average number of PD diagnoses is generally 1.8–4, with an extensive overlap among PDs themselves (DeJong, van den Brink, Harteveld, and Van der Wielen, 1993; Driessen et al., 1998). Thus, the available current data are inconsistent and not conclusive.

The diagnostic disparity and the lack of consistency in the literature with respect to the prevalence, number, and types of PDs associated with substance use disorder are likely to be related to the assessment tools (questionnaires, interviews, etc.); to the type, comorbidity, or severity of substance use disorder considered (abuse or dependence); and to the mental health settings (inpatients or outpatients) (Sher, Trull, Bartholow, and Vieth, 1999).

There are some difficulties with diagnosing PDs in people manifesting active substance use disorders. These problems arise mainly because of behaviors that may be secondary to the effects of a dependence syndrome, such as disturbances in interpersonal functioning that result from the overwhelming importance of drug seeking in severe dependence (Welch, 2007).

There are no any studies comparing the comorbidity of PDs in alcoholism who manifest or do not manifest cocaine abuse. This topic may be relevant because the use of alcohol and cocaine together occurs frequently. Furthermore, the co-occurrence of PDs and substance use disorders is of great interest for the potential role played by PDs in "vulnerability" to substance misuse and dependence, for the impact of PD on the prognosis of substance use disorder (and vice versa), and for the effectiveness of treatment for patients manifesting both substance use and PDs. Substance misusers manifesting PDs are more likely to need longer-term supports than those without PDs (Welch, 2007).

The main aim of this study was to compare the frequency and profile of PDs among treatment-seeking alcohol-dependent patients manifesting or not manifesting cocaine abuse. Our main empirically based hypothesis is that PDs, mostly borderline and antisocial, are more prevalent among alcohol-dependent/cocaine abusers than among only alcohol-dependent patients and that alcohol-dependent/cocaine abusers will be found to be more impulsive and will be sensation seekers.

Method

Participants

The sample for this cross-sectional clinical–epidemiological study consisted of 158 alcohol-dependent subjects (62 manifesting cocaine abuse and 96 not manifesting cocaine abuse). The sample was drawn from patients at the psychiatric outpatient department of the Psycho-organic Medicine Clinic (Bilbao, Basque Country, Spain). The treatment program's ideology is abstinence-oriented, uses pharmacotherapy and cognitive–behavioral techniques, and lasts for 6 months. The most significant demographic characteristics of the total sample are presented in Table 1. All patients gave their informed consent to take part in the study, and the response rate was 100%.

Table 1
Selected Sociodemographic characteristics of the sample

Variables	Alcoholics with cocaine abuse ($N = 62$)	Alcoholics without cocaine abuse ($N = 96$)	t
Age, *M* (*SD*)	34.79 (8.5)	48.99 (10.5)	8.872***
	N(%)	*N* (%)	χ^2 (*df*)
Sex			
Men	46 (74.2)	57 (59.4)	3.645 (1)
Women	16 (25.8)	39 (40.6)	
Marital status			
Single	38 (61.3)	50 (52.1)	
Married	11 (17.7)	19 (19.8)	34.682 (3)***
Divorced	13 (21)	19 (19.8)	
Widowed	0 (0)	8 (8.3)	
Education			
None	2 (3.2)	5 (5.2)	
Primary	18 (29)	23 (24)	13.228 (3)**
Secondary	33 (53.2)	30 (31.3)	
University	9 (14.5)	38 (39.6)	
Socioeconomic status			
Middle-low	6 (9.7)	12 (12.5)	2.661 (2)
Middle	48 (77.4)	63 (65.6)	
Middle-high	8 (12.9)	21 (21.9)	

** $p < .01$; *** $p < .001$.

All patients ($N = 158$) were recruited from consecutive attenders >18 years of age who met the diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.) (*DSM-IV-TR*; American Psychiatric Association, 2000) for alcohol dependence. In addition, alcohol-dependent patients manifesting cocaine abuse met additional diagnostic criteria of *DSM-IV-TR* for cocaine abuse.

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.

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.

The International Personality Disorders Examination (IPDE; Loranger, 1995; Spanish version of López-Ibor, Pérez-Urdániz, and Rubio, 1996) is a semistructured diagnostic interview designed to assess PDs. The IPDE covers all the criteria for the 11 Axis II disorders of *DSM-IV*. To establish reliable diagnoses, the behavior or trait must be present for at least 5 years and the criterion must be met before the age of 25. A self-administered IPDE screening questionnaire is available before the interview to assist in identifying PDs

that might be of focus in the interview. Interrater reliability of the IPDE (median kappa = .73) as well as test–retest reliability (median = .87) (Blanchard and Brown, 1998) is generally good.

Personality tests, such as the Barratt Impulsiveness Scale (BIS; Barrat, 1985) and Sensation Seeking Scale (SSS; Zuckerman, 1979), and psychopathological measures, such as Symptom-Check-List (SCL-90-R; Derogatis, 1975), were also used as adjunctive assessment tools.

Procedure

Once all participants were selected according to the previously indicated criteria, the pretreatment assessment was conducted in two sessions. In the first session, data related to psychopathological characteristics were collected, and the IPDE screening test was 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. All patients were abstinent before the first interview, and the testing was reported for at least two weeks, in order not to be influenced by the residual effects of alcohol or cocaine. All assessments were made between 2003 and 2006.

To control the interrater reliability, a clinical psychologist (the second author) and a psychiatrist (the third author) sat in on the same interview and provided independent rating for each subject. Using the structured clinical interview and the IPDE, they were able to give a clinical diagnosis of both alcohol dependence/cocaine abuse and PDs. The degree of agreement between the professionals, with respect to the diagnosis of alcoholism/cocaine abuse, was 100%. The interrater reliability for PDs in the joint interview was quite high (kappa = .81).

In this study, the following data were analyzed: (a) the sociodemographic, personality, and psychopathological characteristics of both groups; (b) the overall prevalence rate of PDs among the two samples; (c) the PDs profile among the different groups; and (d) the personality-related clusters in both samples. Parametric (t test) and nonparametric tests (χ^2) were used for statistical analysis. All comparisons between groups were analyzed using these tests.

Results

The alcohol-dependent patients manifesting cocaine abuse were younger, with a lower education and with a higher tendency to be single than the only alcohol-dependent patients (Table 1). As far as the personality and psychopathological profile is concerned, alcohol-dependent patients manifesting cocaine abuse were more impulsive and more sensation seekers and were also more afflicted with psychological distress (most of all, with hostility) and comorbid symptoms of Axis I, such as anxiety and depression, than the only alcohol-dependent patients (Table 2). Furthermore, GAF scores mean was 43.60 ($SD = 7.48$) for the alcohol-dependent/cocaine abusers and 44.21 ($SD = 7.51$) for the only alcohol-dependent patients, with no significant statistical differences ($t = .118$).

Prevalence rates of PDs are reported with respect to IPDE. According to this criterion, 39 alcohol-dependent/cocaine abusers (62.9% of this group) and 51 alcohol-dependent patients (53.1% of this group) showed at least one PD. A comparison between groups in the overall prevalence rate of PDs did not show any statistically significant difference ($\chi^2 = 1.469$).

Table 2
Personality and psychopathological variables of the sample

Variables	Alcoholics with cocaine abuse ($N = 62$), M (SD)	Alcoholics without cocaine abuse ($N = 96$), M (SD)	t
Impulsiveness Scale (BIS-10) (range: 0–132)	70.42 (24)	52.45 (14.5)	5.240***
Sensation Seeking Scale (SSS) (range: 0–40)	24.05 (4.8)	16.68 (6.2)	6.151***
Symptom Check-List (SCL-90-R)[a]			
Global Severity Index	60.42 (18.6)	50.15 (21.4)	2.495*
Hostility	61.54 (28.2)	36.49 (26.7)	4.433***

*$p < .05$; ***$p < .001$.
[a]The scores of this scale are expressed in percentiles.

The most prevalent PDs, among the alcohol-dependent/cocaine abusers, were antisocial PD (21%) followed by narcissistic (14.5%) and borderline PDs (11.3%). In comparison, the most frequently diagnosed PDs among the only alcohol-dependent patients were obsessive–compulsive (20.8%), paranoid (10.4%), and dependent (9.4%) PDs. There were statistically significant differences between the groups. Antisocial, borderline, and narcissistic PDs were more associated to alcohol-dependent/cocaine abusers than to only alcohol-dependent patients (Table 3).

Table 3
Frequency and profile of personality disorders in the different groups in the International Personality Disorders Examination

	Alcoholics with cocaine abuse ($N = 62$)		Alcoholics without cocaine abuse ($N = 96$)		
Personality disorders	N	%	N	%	χ^2 (df)
Paranoid	3	4.8	10	10.4	1.552 (1)
Schizoid	0	0	4	4.2	2.650 (1)
Schizotypal	1	1.6	1	1	0.098 (1)
Histrionic	5	8.1	3	3.1	1.912 (1)
Antisocial	13	21	1	1	18.521*** (1)
Narcissistic	9	14.5	5	5.2	4.041*(1)
Borderline	7	11.3	2	2.1	5.945*(1)
Obsessive–compulsive	6	9.7	20	20.8	3.410 (1)
Dependent	3	4.8	9	9.4	1.105 (1)
Avoidant	2	3.2	5	5.2	0.350 (1)
Nonspecified	5	8.1	6	6.3	0.191 (1)
Total[a]	39	62.9	51	53.1	1.469 (1)

*$p < .05$; ***$p < .001$.
[a]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.

Table 4
Clusters of personality disorders in alcohol-dependent patients with and without cocaine abuse

Clusters of personality disorders	Alcoholics with cocaine abuse ($N = 62$)		Alcoholics without cocaine abuse ($N = 96$)		
	N	%	N	%	χ^2
Cluster A	4	6.5	15	15.6	2,996
Cluster B	27	43.5	9	9.4	25,005***
Cluster C	10	16.1	30	31.3	4,556*

*$p < .05$; ***$p < .001$.
Cluster A: paranoid, schizoid, and schizotypal.
Cluster B: histrionic, antisocial, narcissistic, and borderline.
Cluster C: obsessive-compulsive, dependent, avoidant.

With respect to the three clusters of PDs, the presence of cluster B was higher among the alcohol-dependent/cocaine abusers ($N = 27$; 43.5%) than in the only alcohol-dependent patients group ($N = 9$; 9.4%). In comparison, the presence of cluster C was higher among the alcohol-dependent patients ($N = 30$; 31.3%) than in the alcohol-dependent/cocaine abusers group ($N = 10$; 16.1%). These differences were statistically significant ($\chi^2 = 25.005$, $p < .001$; $\chi^2 = 4.556$, $p < .05$, respectively; Table 4).

Discussion

This is the first study in which alcohol-dependent patients and alcohol-dependent/cocaine abusers were compared regarding the rate and profile of PDs. This study revealed that there were some relevant differences about PDs among alcohol-dependent patients who were also diagnosed as manifesting or not manifesting cocaine abuse.

Our data corroborate earlier studies in which substance users were found to be impulsive, hostile, and sensation seekers (Bevins, 2001; Echeburúa and Fernández-Montalvo, 2008; Fernández-Montalvo and Echeburúa, 2004; van den Bosch, Verheul, and van den Brink, 2001). The most salient finding is that more than half of all patients met IPDE diagnostic criteria for a PD: 53.1% in the group of alcohol-dependent patients and 62.9% in the group of alcohol-dependent/cocaine abusers (62.9%). It should be noted that these rates are very high when compared with 21.7% of nonaddicted patients and 6.8% of the healthy controls in a recent study (Echeburúa et al., 2007). These findings are consistent with those found by other studies (DeJong et al., 1993; Driessen et al., 1998; Fernández-Montalvo et al., 2006; Grant et al., 2004; Morgenstern, Langenbucher, Labouvie, and Miller, 1997; Nurnberg, Rifkin, and Doddi, 1993; Pettinati et al., 1999; Powell and Peveler, 1996).

This study documents the profile of who do and do not manifest cocaine abuse. With respect to the types of PDs, antisocial, narcissistic, and borderline PDs were more associated with alcohol-dependent/cocaine abusers than with only alcohol-dependent patients, who were more likely to be obsessive–compulsive, paranoid, and dependent. Unlike other studies, where the average number of PD diagnoses was generally two to four (DeJong et al., 1993; Driessen et al., 1998), the average number of diagnosed PDs for each subject in

our study was one. The other salient finding, with respect to the three clusters of PDs, is that cluster B is more present in alcohol-dependent/cocaine abusers, whereas alcohol-dependent patients are more frequently included in cluster C PDs.

Study Limitations

One limitation in this study is that a different result might be found in a sample of alcohol-dependent people (with or without cocaine abuse comorbidity) drawn from the general population (Grant et al., 2004). 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 the socioeconomically 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, although it includes some manifesting severe alcohol dependence. The advantage of this approach is that it is possible to study alcoholism in itself, independently from social deprivation. However, when all alcohol-dependent patients are considered as a single category, we can inadvertently "homogenize" heterogeneous groups and processes. Accordingly, the findings should be considered with the necessary caution.

Further research should take into account other relevant variables related to substance abuse, such as, for example, interpersonal relationships or social deprivation. The specific instrument (IPDE) does not detect relevant features of the patients who are related to substance abuse. That is the case, for example, of interpersonal relationships, which are often damaged among substance users who previously had good relationships. Structured interviews should pay attention to this relevant area.

This study has both theoretical and applied implications. The accurate understanding of PDs in different types of alcohol-dependent patients could help to guide further research regarding prognosis and treatment decisions according to the patient's personality pattern. Dimensional approaches to PD diagnosis could yield more accurate information (Ullrich, Borkenau, and Marneros, 2001). And, finally, specific gender differences should be dealt with in further research in order to corroborate these preliminary conclusions.

RÉSUMÉ

Désordres de personnalité chez des patients dépendants de l'alcool avec ou sans abus de cocaïne: une étude pilote comparative.

Dans cette étude sont analysés comparativement les troubles de la personnalité (TP) chez des patients alcoolo dépendants avec ou sans abus de cocaïne. L'échantillon est composé de 158 sujets qui se sont rendus à un centre de jour. 39 alcoolo dépendants/abuseurs de cocaïne (62,9%) et 51 uniquement alcoolo dépendants (53,1%) montrent au moins un trouble de la personnalité, sans différence entre les groupes. Les TP les plus fréquents chez les alcoolo dépendants /abuseurs de cocaïne sont: antisocial (21%), narcissique (14,5%) et borderline (11,3%). Les TP les plus fréquents dans le groupe des uniquement alcoolo dépendants sont: obsessionnel compulsif (20,8%), paranoïaque (10,4%) et dépendant (9,4%). On a pu observer une différence significative entre les groupes. En dernier lieu, nous commenterons les limites de cette étude.

RESUMEN

Trastornos de personalidad en pacientes con dependencia alcohólica con o sin abuso de cocaína: Un estudio-piloto comparativo

En este estudio se analizan comparativamente los trastornos de personalidad (TP) en pacientes alcohol-dependientes con o sin abuso de cocaína. La muestra constó de 158 sujetos que acudieron a una clínica ambulatoria. 39 alcohol-dependientes/abusadores de cocaína (62,9%) y 51 sólo alcohol-dependientes (53,1%) mostraron al menos un trastorno de personalidad, sin diferencias entre los grupos. Los TP más frecuentes en los alcohol-dependientes/abusadores de cocaína fueron: antisocial (21%), narcisista (14,5%) y límite (11,3%). Los TP más frecuentes en los sólo alcohol-dependientes fueron: obsesivo-compulsivo (20,8%), paranoide (10,4%) y dependiente (9,4%). Hubo diferencias significativas entre los grupos. Por último, se comentan las limitaciones de este estudio.

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References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed. rev.). Washington, DC: American Psychiatric Association.

Barrat, E. S. (1985). Impulsiveness defined within a systems model of personality. In E. P. Spielberger & J. N. Butcher (Eds.), *Advances in personality assessment* (pp. 113–132). Hillsdale, NJ: Erlbaum.

Bevins, R. A. (2001). Novelty seeking and reward: implications for the study of high-risk behaviors. *Current Directions in Psychological Science,* 10:183–193.

Blanchard, J. J., Brown, S. B. (1998). Structured diagnostic interview schedules. In C. R. Reynolds (Ed.), *Assessment (A.S. Bellack y M. Hersen. Comprehensive Clinical Psychology, vol. 4).* Amsterdam: Elsevier Science.

DeJong, C. A., van den Brink, W., Harteveld, F. M., Van der Wielen, E. G. (1993). Personality disorders in alcoholics and drug addicts. *Comprehensive Psychiatry,* 34:87–94.

Derogatis, L. R. (1975). *The SCL-90-R.* Baltimore: Clinical Psychometric Research.

Driessen, M., Veltrup, C., Wetterling, T., John, U., Dilling, H. (1998). Axis I and Axis II comorbidity in alcohol dependence and the types of alcoholism. *Alcohol Clinical Experimental Research,* 22:77–86.

Echeburúa, E., Bravo de Medina, R., Aizpiri, J. (2005). Alcoholism and personality disorders: an exploratory study. *Alcohol and Alcoholism,* 40:323–326.

Echeburúa, E., Bravo de Medina, R., Aizpiri, J. (2007). Comorbidity of alcohol dependence and personality disorders: a comparative study. *Alcohol and Alcoholism,* 42:618–622.

Echeburúa, E., Fernández-Montalvo, J. (2008). Are there more personality disorders in pathological gamblers than in other kind of patients? A comparative study with the IPDE and the MCMI. *International Journal of Clinical and Health Psychology,* 8.

Fernández-Montalvo, J., Echeburúa, E. (2004). Pathological gambling and personality disorders: an exploratory study with the IPDE. *Journal of Personality Disorders,* 18:500–505.

Fernández-Montalvo, J., Landa, N., López Goñi, J. J., Lorea, I. (2006). Personality disorders in alcoholics: a comparative study between the IPDE and the MCMI-II. *Addictive Behaviors,* 31:1442–1448.

Grant, B. F., Stinson, F. S., Dawson, D. A., Chou, S. P., Ruan, W. J., Pickering, R. P. (2004). Co-occurrence of 12-month alcohol and drug use disorders and personality disorders in the United States. *Archives of General Psychiatry,* 61:361–368.

López-Ibor, J., Pérez-Urdániz, A., Rubio, V. (1996). *Examen Internacional de los Trastornos de la Personalidad: Módulo DSM-IV. Versión española*. Madrid: Organización Mundial de la Salud.

Loranger, A. W. (1995). *International Personality Disorders Examination (IPDE).* Geneva: World Health Organization.

Morgenstern, J., Langenbucher, J., Labouvie, E., Miller, K. (1997). The comorbidity of alcoholism and personality disorders in a clinical population: prevalence rates and relation to alcohol typology variables. *Journal of Abnormal Psychology,* 106:74–84.

Nurnberg, H. G., Rifkin, A., Doddi, S. (1993). A systematic assessment of the comorbidity of DSM-III-R personality disorders in alcoholic outpatients. *Comprehensive Psychiatry,* 34:447–454.

Pettinati, H., Pierce, J., Pierce, J., Belden, P., Meyers, K. (1999). The relationship of Axis II personality disorders to other known predictors of addiction treatment outcome. *The American Journal of Addictions,* 8:136–147.

Powell, G., Peveler, R. (1996). Nature and prevalence of personality disorders amongst patients receiving treatment for alcohol dependence. *Journal of Mental Health,* 5:305–314.

Sher, K. J., Trull, T. J., Bartholow, B. D., Vieth, A. (1999). Personality and alcoholism: issues, methods, and etiological processes. In K. E. Leonard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd). New York: Guilford.

Ullrich, S., Borkenau, P., Marneros, A. (2001). Personality disorders in offenders: categorical versus dimensional approaches. *Journal of Personality Disorders,* 15:442–449.

van den Bosch, L. M. C., Verheul, R., van den Brink, W. (2001). Substance abuse in borderline personality disorder: clinical and etiological correlates. *Journal of Personality Disorders,* 15:416–424.

Welch, S. (2007). Substance use and personality disorders. *Psychiatry,* 6:27–29.

Zimmerman, M., Coryell, W. (1989). DSM-III personality disorder diagnoses in a non-patient sample: demographic correlates and comorbidity. *Archives of General Psychiatry,* 46:682–689.

Zuckerman, M. (1979). *Sensation seeking: beyond the original level of arousal.* Hillsdale, NJ: Erlbaum.