Comparison of Completers and Dropouts in Psychological Treatment for Cocaine Addiction

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ABSTRACT

This study investigated the characteristics associated with treatment dropout in cocaine-dependent patients. A sample of 102 cocaine-addicted patients (89 male and 13 female) was assessed at entry to a therapeutic programme in order to collect information on socio-demographic, psychopathological (assessed by *SCL-90-R*), personality (assessed by *MCMI-II*), legal and consumption variables (assessed by EuropAsi). The rate of patients who dropped out of the intervention programme was 30.4% (N=31) of the sample. Dropouts and completers were compared on all studied variables. According to the results obtained, dropouts showed a significantly higher score on the EuropAsi variables related to alcohol consumption, family problems and need for psychological treatment, as well as on the histrionic and antisocial scales of the *MCMI-II*. Moreover, all patients with histrionic personality disorder dropped out of the treatment. On the other hand, completers showed a significantly higher score on the compulsive scale of the *MCMI-II*. The implications of these results for further research and clinical practice are commented upon.

Keywords: cocaine addiction; assessment; treatment completion; dropout; predictors.

INTRODUCTION

In recent years, cocaine abuse has become widespread among the European population (European Monitoring Centre for Drugs and Drug Addiction, 2007; Observatorio Europeo de las Drogas y Toxicomanías, 2004; Parry, Pluddemann, & Myers, 2007). Cocaine use disorders are associated with significant clinical, personal and social problems (Fernandez-Montalvo, Lorea, Lopez-Goni, & Landa, 2008), and addiction to stimulants represents a serious and prevalent problem in drug dependence treatment programmes (Bobes, Sáiz, González, & Bascarán, 2001; Caballero & Alarcón, 2000; Observatorio Español sobre Drogas, 2003). This has led to an increase, albeit small, in specific intervention programmes for this problem.

Studies concerning the treatment of addictive behaviours have shown that length of time spent in an intervention programme constitutes one of the strongest predictors of both good therapeutic results and better long-term prognosis (Grella, Hser, Joshi, & Douglas Anglin, 1999; Lopez-Goni, Fernandez-Montalvo, Illescas, Landa, & Lorea, 2008; Ravndal, Vaglum, & Lauritzen, 2005; Sayre et al., 2002). However, one of the main problems in the treatment of addiction is the large number of dropouts, with rates ranging from 60% to 80% of patients (Fernandez-Montalvo et al., 2004; Kampman et al., 2001; Simpson et al., 1997). Therefore, early dropout from drug treatment continues to be a widespread problem, limiting overall treatment effectiveness, increasing the likelihood of relapse and exacerbating negative health, financial and legal consequences (King & Canada, 2004; Marrero et al., 2005).

Regarding cocaine dependence treatment specifically, dropout rates are also high, ranging from 50% to 70% (Kampman et al., 2001; Streeter et al., 2008). As with other addictions, the number of months in treatment for cocaine dependence is positively associated with decreased cocaine use, improved outcome, and decreased

morbidity (Hser et al., 2006). Therefore, the study of factors related to treatment retention and/or dropout is an important focus of research.

A growing number of investigations have empirically studied predictors of treatment retention and/or dropout in cocaine-dependent patients. Some of them are related to socio-demographic variables (Alterman, McKay, Mulvaney, & McLellan, 1996), withdrawal symptoms (Kampman et al., 2001), initial urine toxicological results (Alterman et al., 1997; Kampman et al., 2001), anxiety sensitivity at treatment entry (Lejuez et al., 2008), cognitive performance (Aharonovich et al., 2006; Streeter et al., 2008), personality variables (Fernandez-Montalvo, Lorea, Lopez-Goni, Landa, & Zarzuela, 2003; Fernandez-Montalvo et al., 2004) and variables related to treatment programmes (Ball, Carroll, Canning-Ball, & Rounsaville, 2006; Lopez-Goni, Fernandez-Montalvo, Illescas, Landa, & Lorea, 2008), among others. However, none of these variables has been found to be consistently predictive of early attrition. Results of previous studies have not shown any consistent variable that predicts or differs between completers and dropouts. On the contrary, there is a wide variability of results between different studies. Treatment programmes and clients, even within the same country, as well as study designs and methods, vary to such an extent that it is impossible to expect the same findings in different studies.

This study aims to identify specific variables that differentiate between completers and dropouts in cocaine-dependent patients in a specific treatment programme in Spain. To this end, socio-demographic, psychopathological, personality, legal and consumption variables were taken into account.

MATERIAL AND METHODS

Material

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The sample consisted of 102 cocaine-addicted patients (89 male and 13 female) who sought outpatient treatment at the "*Proyecto Hombre* Addiction Treatment Programme" in Pamplona, Spain, during the period from November 2006 to August 2008. This is a cognitive-behavioural intervention on an outpatient basis, aimed at abstinence. The main therapeutic techniques are related to stimulus control and *in vivo* exposure, as well as relapse prevention. Successful programme completion typically requires around 12 months, and it is achieved when a patient completes all therapeutic sessions. During the treatment, a detailed follow-up of each patient was carried out by the treatment staff in order to determine the rates of treatment completion and dropout (discontinuing the treatment without being discharged).

According to the current study's admission criteria, the patients had to a) meet the diagnostic criteria of cocaine dependence according to *DSM-IV-TR* (American Psychiatric Association, 2000), b) be between 18 and 65 years old and c) give their informed consent to participate in the study.

The mean age of the individuals in the selected sample was 30.9 years (*SD*=5.9), with 89 (79.4%) men and 13 (11.6%) women. The socioeconomic level was middle to lower-middle class. With regard to cocaine abuse, mean consumption was frequent (5.5 days/week), with a mean intake of 6.7 grams/week (range: 0.5-42 grams/week). Most patients were cocaine dependent for nearly five years before entering treatment.

Methods

EuropASI

The *EuropASI* (Kokkevi & Hartgers, 1995) is the European version of the *Addiction Severity Index (ASI)* (McLellan, Luborsky, Woody, & O´Brien, 1980). This interview assesses the need for treatment in the following six areas: a) general medical state; b) labour and economic situation; c) drug consumption (alcohol included); d)

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legal problems; e) family and social relationships; and f) psychiatric state. Severity scores range from 0 (no problem) to 9 (extreme problem) in each area, and the cut-off point for each area is 4. The Spanish version was used in this study (Bobes, González, Sáiz, & Bousoño, 1996).

Symptom Checklist-90-Revised (SCL-90-R)

The *Symptom Checklist-90-Revised (SCL-90-R)* (Derogatis, 1992) (Spanish version by González de Rivera, 2002) is a self-administered general psychopathological assessment questionnaire. It comprises 90 items with 5 alternatives for each on a Likert-type scale, ranging from 0 (*none*) to 4 (*very much*). The aim of the questionnaire is to indicate the respondent's psychiatric symptoms. As it has been shown to be sensitive to therapeutic change, it may be used for either single or repeated assessments. The *SCL-90-R* measures nine areas of primary symptoms: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. It also provides three indices that reflect the subject's overall level of severity.

Millon Clinical Multiaxial Inventory (MCMI-II)

The *Millon Clinical Multiaxial Inventory (MCMI-II)* (Millon, 1997) is a 175-item, true/false, self-report questionnaire. It was designed to identify clinical states and personality disorders similar to those contained in the *DSM-IV*. The *MCMI-II* contains eight basic personality scales: 1) Schizoid-asocial; 2) Avoidant; 3) Dependent-submissive; 4) Histrionic-gregarious; 5) Narcissistic; 6) Antisocial-aggressive; 7) Compulsive-conforming; and 8) Passive-aggressive. In addition to the basic personality patterns, there are three pathological personality scales: Schizotypal (S), Borderline (B) and Paranoid (P). The nine symptom scales of the MCMI-II have not been taken into account because they are not relevant to the purposes of our research. According to the

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conservative criteria of Weltzer (1990) regarding the *MCMI-II*, a base rate score above 84 is considered to be significant.

Assessment procedure

Once the clinical sample was selected according to the previously described criteria, assessment of the sample was carried out in three sessions (once a week). In the first one, data related to socio-demographic characteristics and to drug consumption were collected. In the second session, the presence of psychopathological symptoms was assessed using the *SCL-90-R*. Finally, in the third one, the prevalence of personality disorders was assessed using the *MCMI-II*. The time interval between sessions was the same for each participant. After assessment sessions, patients began the standard treatment of *Proyecto Hombre* for cocaine addiction.

Data analysis

Descriptive analyses were conducted for all variables. Bivariate analyses were employed using χ^2 or t-test statistics, depending on the nature of the variables studied. A difference of $p < .05$ was considered significant. Once these results were obtained, several logistic regression models were carried out. The dependent variable in all cases was treatment dropout. The independent variables were (in different models) age, gender, socioeconomic level, EuropASI severity scores (six areas), SCL-90-R scores, presence of personality disorders or number of personality disorders. Statistical analyses were carried out with SPSS (version 15.0 for Windows).

RESULTS

The rate of patients who dropped out of the intervention programme prematurely was 30.4% of the sample (N=31). They spent an average of 4.3 months (SD=2.3) in the treatment programme versus completers, who spent an average time of 12.2 months (SD=3.5). In order to assess factors related to adherence to and dropout from the

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treatment, the two groups were compared on all studied variables: EuropAsi areas, SCL-90-R dimensions and MCMI-II scales.

The results showed that the only statistically significant differences were found in some variables related to EuropAsi alcohol abuse and family problems (table 1) and MCMI personality dimensions (table 2) and disorders (table 3).

PLACE TABLES 1, 2 AND 3 HERE

Patients who dropped out of the treatment programme had significantly higher scores on the EuropAsi variables related to alcohol consumption, family problems and need of psychological treatment, as well as on the histrionic and antisocial scales of the *MCMI-II*. Furthermore, the results showed that all patients suffering from a histrionic personality disorder (N=3) dropped out of the treatment. On the other hand, completers scored significantly higher on the compulsive scale of the *MCMI-II*.

Once these results were obtained, several logistic regression models were carried out. However, none of them contributed anything significant to the observed difference.

DISCUSSION

The results of this study indicated that patients who dropped out of the treatment had significantly higher alcohol consumption, more family problems and greater need of psychological treatment than patients who completed the whole treatment programme. Moreover, the two groups differed on a number of personality variables. Dropouts scored significantly higher on the histrionic and antisocial personality disorders scales. However, completers scored significantly higher on the compulsive scale of the *MCMI-II*.

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The finding regarding alcohol abuse suggests that cocaine-addicted patients who abuse alcohol simultaneously are in the worst condition for coping with a therapeutic programme. The simultaneous consumption of alcohol and cocaine has been found to be one of the most common characteristics of cocaine use in recent years (Halikas, Crosby, Pearson, Nugent, & Carlson, 1994; Lopez & Becoña, 2006; Rounsaville et al., 1991), with comorbidity rates reaching up to 80% in some cases (Fernandez-Montalvo et al., 2008). This is important because comorbidity between alcohol and cocaine dependence has been associated with worse levels of global performance, earlier onset of substance abuse, greater severity of drug abuse and increased rates of concurrent psychopathology (Flannery, Morgenstern, McKay, Wechsberg, & Litten, 2004). All of these aspects greatly complicate the development of these patients in therapy. Therefore, it seems necessary to develop specific therapeutic strategies for such cases.

Additionally, patients who dropped out showed more family-associated problems and a higher psychiatric symptom score. The presence of family problems is very frequent among substance abusers, as has been indicated by several studies (Fernandez-Montalvo, Lopez-Goni, Illescas, Landa & Lorea, 2008; Kaplan & Broekaert, 2003). Consequently, this variable should be taken into account by therapeutic programmes when a new patient arrives. It is likely that family problems are a strong stressor for addicted patients and interfere seriously with patients' appropriate therapeutic evolution. The same could occur with patients who present more associated psychiatric symptoms. Such disturbances probably affect to the patient's readiness for completing a therapeutic programme. Hence, psychopathological comorbidity is an important domain to account for when assessing and treating addicted patients.

Regarding personality results, completers presented a higher score than dropouts on the compulsive scale of the *MCMI-II*. This finding demonstrates that outpatient

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treatment, which is more flexible than inpatient treatment, could be more useful for patients with compulsive traits than for patients who are not as worried about rules, order and control. Perhaps the latter need a more rigid therapeutic structure, like therapeutic communities, in order to prevent treatment dropout and relapse. However, this is only a hypothesis that needs to be empirically investigated.

On the other hand, dropouts showed a higher presence of histrionic and antisocial traits. These findings coincide with those obtained in other studies of addicted patients showing a relationship between addictions and personality disorders (Ball, & Cecero, 2001; Craig, 2000; Fernandez-Montalvo, Landa, Lopez-Goni, & Lorea, 2006; Fernandez-Montalvo et al., 2003; Grant et al., 2004; Grella, Joshi, & Hser, 2003; Lorea, Fernandez-Montalvo, Lopez-Goni, & Landa, 2009). From a clinical point of view, it is probable that such patients do not benefit as much from the outpatient treatment programme and probably need, as previously noted, a more rigid type of treatment, like therapeutic communities.

However, none of the studied variables were able to predict treatment attrition and dropout in a logistic regression model. In previous studies of other substance addictions (heroin, alcohol and polyconsumption), logistic regression models found some specific variables, like sex and age (Lopez-Goni et al., 2008), to be predictors of treatment dropout. It may be necessary to include other aspects, like motivational variables, in order to find predictors of attrition and dropout.

The present study had a number of limitations. First, this was an exploratory and descriptive study in which the sample, although clinically relevant, is rather small. Another issue that should be taken into account is the configuration of the sample itself. It is noteworthy that few women were included in the sample; therefore, the obtained results concern mainly male addiction patients. It is true that this is the case in almost all

studies about drug dependence, but it should nevertheless be taken into account when generalising the obtained results. Third, the assessment of the sample was carried out in three sessions (once a week). Hence, the final sample could be a selected one since all clients had to attend three consecutive measurements during a three-week period, and some of them dropped out before all of the measurements were completed. This methodological problem might influence the findings and must be considered in further research. Fourth, probably due to the small size of the sample, personality disorders in this study are too few to compare percentages of dropouts and completers. This aspect makes it difficult to state solid conclusions. Finally, future research should take into account other variables not included in this study, mainly motivational ones.

In summary, the present study investigated the differences between dropouts and completers among cocaine-addicted patients treated for their addiction in the outpatient programme of *Proyecto Hombre of Navarre* (Spain). This study is one of many investigations directed at understanding factors related to dropout and relapse of patients in addiction treatment programs (Fernandez-Montalvo, Lopez-Goni, Illescas, Landa, & Lorea, 2007; Lopez-Goni et al., 2008; Lopez-Goni et al., 2008). From a clinical perspective, this is an important goal because time spent in treatment programmes is probably the best guarantee for relapse prevention.

REFERENCES

Aharonovich, E., Hasin, D. S., Brooks, A. C., Liu, X. H., Bisaga, A., & Nunes, E. V. (2006). Cognitive deficits predict low treatment retention in cocaine dependent patients. *Drug and Alcohol Dependence, 81*(3), 313-322.

Alterman, A. I., Kampman, K., Boardman, C. R., Cacciola, J. S., Rutherford, M. J., McKay, J. R., et al. (1997). A cocaine-positive baseline urine predicts outpatient treatment attrition and failure to attain initial abstinence. *Drug and Alcohol Dependence, 46*(1-2), 79-85.

Alterman, A. I., McKay, J. R., Mulvaney, F. D., & McLellan, A. T. (1996). Prediction of attrition from day hospital treatment in lower socioeconomic cocaine-dependent men. *Drug and Alcohol Dependence, 40*(3), 227-233.

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

Ball, S. A., Carroll, K. M., Canning-Ball, M., & Rounsaville, B. J. (2006). Reasons for dropout from drug abuse treatment: Symptoms, personality, and motivation. *Addictive Behaviors, 31*(2), 320-330.

Ball, S. A. & Cecero, J. J. (2001). Addicted patients with personality disorders: traits, schemas, and presenting problems. Journal of Personality Disorders, 15, 72-83.

Bobes, J., González, M. P., Sáiz, P. A., & Bousoño, M. (1996). *Índice europeo de severidad de la adicción: EuropASI. Versión española.* Paper presented at the Actas de la IV Reunión Interregional de Psiquiatría.

Bobes, J., Sáiz, P. A., González, M. P., & Bascarán, M. T. (2001). Epidemiología del uso/abuso de cocaína. *Adicciones, 13*(suplemento 2), 23-36.

Caballero, L., & Alarcón, A. (2000). Cocaína y cocainomanía en atención primaria. In L. Caballero (Ed.), *Drogas en Atención Primaria* (Vol. 2). Madrid: Fundación Ciencias de la Salud.

Craig, R. J. (2000). Prevalence of personality disorders among cocaine and heroin addicts. *Substance Abuse, 21,* 87-94.

Derogatis, L. R. (1992). *The SCL-90-R*. Baltimore: Clinical Psychometric Research.

European Monitoring Centre for Drugs and Drug Addiction. (2007). *Annual Report 2007: The state of drug problem in Europe*. Luxemburg: Office for Official Publications of the European Communities.

Fernandez-Montalvo, J., Landa, N., Lopez-Goni, J. J., & Lorea, I. (2006). Personality disorders in alcoholics: A comparative pilot study between the IPDE and the MCMI-II. *Addictive Behaviors, 31*(8), 1442-1448.

Fernandez-Montalvo, J., Lopez-Goni, J. J., Illescas, C., Landa, N., & Lorea, I. (2007). Relapse precipitants in addictions: Results in a therapeutic community. *Journal of Addictive Diseases, 26*, 55-61.

Fernandez-Montalvo, J., Lopez-Goni, J. J., Illescas, C., Landa, N., & Lorea, I. (2008). Evaluation of a therapeutic community treatment of addictions: A long-term follow-up study in Spain. *Substance Use & Misuse, 43*(10), 1362-1377.

Fernandez-Montalvo, J., Lorea, I., Lopez-Goni, J. J., & Landa, N. (2008). Comorbilidad psicopatológica en la adicción a la cocaína: resultados con el SCL-90-R. *Behavioral Psychology/Psicología Conductual, 16*(2), 273-286.

Fernandez-Montalvo, J., Lorea, I., Lopez-Goni, J. J., Landa, N., & Zarzuela, A. (2003). Trastornos de personalidad en adictos a la cocaína: un estudio-piloto. *Análisis y Modificación de Conducta, 29*(123), 79-98.

Fernandez-Montalvo, J., Lopez-Goni, J. J., Landa, N., Illescas, C., Lorea, I., & Zarzuela, A. (2004). Trastornos de personalidad y abandonos terapéuticos en pacientes adictos: resultados en una comunidad terapéutica. *International Journal of Clinical and Health Psychology, 4*(2), 271-283.

Flannery, B. A., Morgenstern, J., McKay, J., Wechsberg, W. M., & Litten, R. Z. (2004). Co-occurring alcohol and cocaine dependence: Recent findings from clinical and field studies. *Alcoholism-Clinical and Experimental Research, 28*(6), 976-981.

González de Rivera, J. L. (2002). *Versión española del SCL-90-R*. Madrid: TEA.

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: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry, 61*, 361-368.

Grella, C. E., Hser, Y. I., Joshi, V., & Douglas Anglin, M. (1999). Patient histories, retention, and outcome models for younger and older adults in DATOS. *Drug and Alcohol Dependence, 57*(2), 151-166.

Grella, C. E., Joshi, V., & Hser, Y. I. (2003). Follow up of cocaine-dependent men and women with antisocial personality disorder. *Journal of Substance Abuse Treatment, 25,* 155-64.

Halikas, J. A., Crosby, R. D., Pearson, V. L., Nugent, S. M., & Carlson, G. A. (1994). Psichiatric comorbidity in treatment-seeking cocaine abusers. *American Journal on Addictions, 3*(1), 25-35.

Hser, Y. I., Stark, M. E., Paredes, A., Huang, D., Anglin, M. D., & Rawson, R. (2006). A 12-year follow-up of a treated cocaine-dependent sample. *Journal of Substance Abuse Treatment, 30*(3), 219-226.

Kampman, K. M., Alterman, A. I., Volpicelli, J. R., Maany, I., Muller, E. S., Luce, D. D., et al. (2001). Cocaine withdrawal symptoms and initial urine toxicology results predict treatment attrition in outpatient cocaine dependence treatment. *Psychology of Addictive Behaviors, 15*(1), 52-59.

Kaplan, C., & Broekaert, E. (2003). An introduction to research on the social impact of the therapeutic community for addiction. *International Journal of Social Welfare, 12*, 204-210.

King, A. C., & Canada, S. A. (2004). Client-related predictors of early treatment drop-out in a substance abuse clinic exclusively employing individual therapy. *Journal of Substance Abuse Treatment, 26*(3), 189-195.

Kokkevi, A., & Hartgers, C. (1995). European adaptation of a multidimensional assessment instrument for drug and alcohol dependence. *European Addiction Research, 1*, 208-210.

Lejuez, C. W., Zvolensky, M. J., Daughters, S. B., Bornovalova, M. A., Paulson, A., Tull, M. T., et al. (2008). Anxiety sensitivity: A unique predictor of dropout among inner-city heroin and crack/cocaine users in residential substance use treatment. *Behaviour Research and Therapy, 46*(7), 811-818.

Lopez, A., & Becoña, E. (2006). El consumo de alcohol en personas con dependencia de la cocaína que están bajo tratamiento. *Psicología Conductual, 14*(2).

Lopez-Goni, J. J., Fernandez-Montalvo, J., Illescas, C., Landa, N., & Lorea, I. (2008). Determining socio-demographic predictors of treatment dropout: results in a therapeutic community. *International Journal of Social Welfare, 17*(4), 374-378.

Lopez-Goni, J. J., Fernandez-Montalvo, J., Illescas, C., Landa, N., & Lorea, I. (2008). Razones para el abandono del tratamiento en Proyecto Hombre. *Trastornos Adictivos, 10*(2), 104-111.

Lorea, I., Fernandez-Montalvo, J., Lopez-Goni, J. J., & Landa, N. (2009). Adicción a la cocaína y trastornos de personalidad: un estudio con el MCMI-II. *Adicciones, 21*(1), 57-63.

Marrero, C. A., Robles, R. R., Colon, H. M., Reyes, J. C., Matos, T. D., Sahai, H., et al. (2005). Factors associated with drug treatment dropout among injection drug users in Puerto Rico. *Addictive Behaviors, 30*(2), 397-402.

McLellan, A. T., Luborsky, L., Woody, G. E., & O´Brien, C. P. (1980). An improved diagnostic evaluation instrument for substance abuse patients: The Addiction Severity Index. *The Journal of Nervous and Mental Disease*(168), 26-33.

Millon, T. (1997). *Millon Clinical Multiaxial Inventory- II (MCMI II).* Minneapolis: National Computer Systems.

Observatorio Español sobre Drogas. (2003). *Informe número 6.* Madrid: Dirección General Plan Nacional Sobre Drogas.

Observatorio Europeo de las Drogas y Toxicomanías. (2004). *Informe Anual 2003.* Luxemburgo: Oficina de Publicaciones Oficiales de las Comunidades Europeas.

Parry, C., Pluddemann, A., & Myers, B. (2007). Cocaine treatment admissions at three sentinel sites in South Africa (1997-2006): findings and implications for policy, practice and research. *Substance Abuse Treatment, Prevention, and Policy, 2*(1), 37.

Ravndal, E., Vaglum, P., & Lauritzen, G. (2005). Completion of long-term inpatient treatment of drug abusers: A prospective study from 13 different units. *European Addiction Research, 11*(4), 180-185.

Rounsaville, B. J., Anton, S. F., Carroll, K. M., Budde, D., Prusoff, B. A., & Gawin, F. (1991). Psychiatric diagnoses of treatment-seeking cocaine abusers. *Archives of General Psychiatry, 48*, 43-51.

Sayre, S. L., Schmitz, J. M., Stotts, A. L., Averill, P. M., Rhoades, H. M., & Grabowski, J. J. (2002). Determining predictors of attrition in an outpatient substance abuse program. *American Journal of Drug and Alcohol Abuse, 28*(1), 55-72.

Simpson, D. D., Joe, G. W., Broome, K. M., Hiller, M. L., Knight, K., & Rowan-Szal, G. A. (1997). Program diversity and treatment retention rates in the Drug Abuse

Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors*(11), 279-293.

Streeter, C. C., Terhune, D. B., Whitfield, T. H., Gruber, S., Sarid-Segal, O., Silveri, M. M., et al. (2008). Performance on the Stroop predicts treatment compliance in cocaine-dependent individuals. *Neuropsychopharmacology, 33*(4), 827-836.

Weltzer, S. J. (1990). The Millon Clinical Multiaxial Inventory (MCMI): A review. *Journal of Personality Assessment*(55), 445-464.

Table 1. Comparison of EuropAsi scores

	Completers (N=71)	Dropouts (N=31)		Total (N=102)
	Mean (SD)	Mean (SD)	*t*	Mean (SD)
EuropASI				
Medical	1.8 (1.2)	1.9 (1.1)	0.66	1.8 (1.1)
Job satisfaction	1.9 (1.1)	2.3 (1.5)	1.25	2.0 (1.3)
Alcohol	2.6 (1.5)	3.4 (1.8)	2.07*	2.8 (1.6)
Drugs	4.4 (1.1)	4.7 (1.4)	1.33	4.5 (1.2)
Legal	1.7 (1.1)	2.0 (1.4)	0.92	1.8 (1.2)
Family	3.0 (1.4)	3.8 (1.7)	2.32*	3.3 (1.6)
Psychiatric	2.8 (1.6)	3.5 (1.8)	2.01*	3.1 (1.6)

*p<0.05

Table 2. Comparison of *MCMI-II* scores

	Completers (N=71)		Dropouts (N=31)			Total (N=102)	
	Mean	(SD)	Mean	(SD)	*t*	Mean	(SD)
Schizoid	54.7	21.8	49.4	17.7	1.2	53.1	20.7
Phobic	46.5	26.2	46.7	27.0	0.0	46.5	26.3
Dependence	58.0	24.9	56.2	21.9	0.3	57.5	23.9
Histrionic	52.9	19.5	61.8	18.1	2.2*	55.6	19.4
Narcissistic	46.8	26.7	53.9	22.9	1.3	49.0	25.7
Antisocial	48.3	25.8	57.8	20.0	2.0*	51.2	24.4
Aggressive-sadistic	49.2	23.9	56.0	19.2	1.4	51.2	22.7
Compulsive	53.5	20.8	44.5	19.7	2.0*	50.7	20.8
Passive-aggressive	42.3	31.3	49.5	32.3	1.1	44.5	31.6
Self-destructive	46.2	22.8	49.4	24.0	0.7	47.1	23.1
Schizotypal	39.7	22.5	36.8	22.2	0.6	38.8	22.3
Borderline	38.6	25.9	47.7	27.8	1.6	41.3	26.7
Paranoid	52.7	19.6	54.3	14.0	0.4	53.2	18.1

*$p<0.05$

Table 3. Comparison of the rate of personality disorders (MCMI-II)

	Completers (N=71)		Dropouts (N=31)		χ^2	Total (N=102)	
	N	(%)	N	(%)		N	(%)
Schizoid	4	(5.6%)	0	0	1.8	4	(3.9%)
Phobic	4	(5.6%)	3	(9.7%)	0.5	7	(6.9%)
Dependence	9	(12.7%)	2	(6.5%)	0.9	11	(10.8%)
Histrionic	0	--	3	(9.7%)	7.1**	3	(2.9%)
Narcissistic	6	(8.5%)	2	(6.5%)	0.1	8	(7.8%)
Antisocial	4	(5.6%)	2	(6.5%)	0.5	6	(5.9%)
Aggressive-sadistic	4	(5.6%)	2	(6.5%)	0.5	6	(5.9%)
Compulsive	4	(5.6%)	1	(3.2%)	0.3	5	(4.9%)
Passive-aggressive	9	(12.7%)	6	(19.4%)	0.8	15	(14.7%)
Self-destructive	2	(2.8%)	1	(3.2%)	0	3	(2.9%)
Schizotypal	0	--	0	--	--	0	--
Borderline	2	(2.8%)	2	(6.5%)	0.8	4	(3.9%)
Paranoid	0	--	0	--	--	0	--

**p<0.01