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# Personality in male patients with substance use disorder and/or severe mental illness



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## ABSTRACT

Dual diagnosis (DD) is the coexistence of a substance use disorder (SUD) and severe mental illness (SMI). The aim of this study is to determine for the first time if a specific personality pattern exists for DD patients compared to those who only have SUD or SMI. The sample was composed of 102 male, 34 patients in each group (DD, SUD and SMI). DD and SMI groups included 20 schizophrenic and 14 depressed patients respectively. Cloninger's TCI-R was administered together with a structured interview of sociodemographic and clinical characteristics. All the temperament dimensions and Self-directedness provided differences among groups. The DD and SUD showed significant higher scores in Novelty Seeking regarding SMI, whereas for Harm Avoidance the SUD subjects scored lower with respect to the DD and SMI group. Persistence was significant lower for the DD and SMI groups compared to the SUD patients. The DD obtained low significant scores in Reward Dependence in relation to the SUD and Self-directedness in relation to the SUD and SMI. Our data highlight the presence of a different personality profiles among DD, SUD and SMI disorders. Taking into account the patients' personality can benefit the clinical course and minimize the DD impact.

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## 1. Introduction

The coexistence of a substance use disorder (SUD) and a mental disease is called Dual Diagnosis (DD). Most studies show that comorbidity prevalence ranges between 55% and 85% (Torrens et al., 2011; Arias et al., 2013). The most prevalent disorders of DSM-IV-TR Axis I are psychotic, depressive and anxiety disorders (Lukasiewicz et al., 2009; Vergara-Moragues et al., 2012), whereas for Axis II are antisocial, borderline, narcissistic and histrionic personality disorders of cluster B (Modestin et al., 2007; Ringen et al., 2008; Pompili et al., 2009).

DD is most common in males who are usually psychotic and bipolar, whereas for dual women the most typical diseases are depression and anxiety (Rush and Koegl, 2008; Miquel et al., 2011). Dual patients are usually younger and live with their parents, are single, have finished primary studies, have worst work activity and higher number of suicidal attempts than those who only have SMI (Zhornitsky et al., 2012; Dragt et al., 2012; Morojele et al., 2012). DD is related to more difficulty to complete a treatment successfully, more relapse rates, use of health services, serious disorders, more functional disability and cognitive,

psychological, physical and social impairment (Rush and Koegl, 2008; Morojele et al., 2012; Arias et al., 2013; Benaiges et al., 2013) and worst quality of life (Benaiges et al., 2012) compared with the presence of only one disorder. These results emphasize the need to understand the factors that affect DD (Szerman et al., 2014). The personality traits can be an important factor in improving the knowledge of the relation between patients, drugs and environment where addictive behavior appears (Marquez-Arrico and Adan, 2013).

The Cloninger model of personality has been proven useful in detecting personality disorders and addictive behaviors (Cloninger et al., 1993, 2006). This model describes the existence of temperament (heritable and stable responses over time) and includes the dimensions of Novelty Seeking, Reward Dependence, Harm Avoidance and Persistence. Character is based on mechanisms that are developed through life experience and includes Self-directedness, Cooperativeness and Self-Transcendence. Temperament dimensions, the more biological part of personality, seem to play an important role in addictive behaviors (Zoccali et al., 2007) and therefore knowing the personality traits of DD patients can help to improve differential diagnosis and establish more effective treatment strategies.

Most studies based on the Cloninger personality model have focused on the SUD personality profile. These studies show higher scores in Novelty Seeking, regardless of the substance used (Sher and Bartholow, 2000; Terracciano et al., 2008; Zhornitsky et al.,

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2012; Marquez-Arrico and Adan, 2013) and lower scores in Self-directedness and Cooperativeness, with a greater tendency for impulsive behaviors not based on goals (Liraud and Verdoux, 2000; Le Bon et al., 2004; Spalletta et al., 2007; Terracciano et al., 2008; Lukasiewicz et al., 2009; Angres et al., 2013). Some studies have also found Harm Avoidance high scores in SUD patients compared to general population samples (Vaidya and Garfield, 2003; Barron et al., 2004; Kim et al., 2007) as well as in SMI in relation to healthy controls (Hori et al., 2008; Latalova et al., 2013; Teraishi et al., 2015). The combined results of Novelty Seeking, Harm Avoidance and Self-directedness have been linked to addiction severity (Pedrero and Ruiz, 2012) although it remains to be determined whether they are the cause or the consequence of substance intake. The data from the Reward Dependence dimension are heterogeneous. Subjects with high scores tend to show more difficulty to learn new behaviors and to extinguish behaviors related to gratification where more reinforcement would be necessary (Pedrero and Ruiz, 2012). In return, those with low scores show less sensitivity to the feelings of others and more difficulty in establishing social contact (Ritsner and Susser, 2004; Kurs et al., 2005; Angres et al., 2013). In both cases, Reward Dependence can hinder rehabilitation processes.

Few studies have investigated DD personality dimensions with the Cloninger model. The most conclusive association is high Novelty Seeking in DD patients in relation to general population and SUD (Lukasiewicz et al., 2009; Latalova et al., 2013) or SMI (Kim et al., 2007; Haro et al., 2007). High scores in this dimension are considered a risk factor to develop addictive behaviors (Leventhal et al., 2007). On the other hand, a study obtained high scores in Harm Avoidance in DD in relation to SUD or control group in a sample of prisoners (Lukasiewicz et al., 2009).

The main objective of the present study is to explore whether personality differences exist among DD, SUD and SMI patients assessing temperament and character using the Cloninger model, as well as to determine if there is a differential personality profile among them. To our knowledge, no other previous research has worked with this design, including these three clinical groups.

## 2. Method

### 2.1. Participants

The sample was composed of 102 volunteer patients, 34 of them in each group (DD, SUD and SMI). DD and SMI groups included mental disorders: schizophrenia (20 patients in each group) and depression (14 patients in each group). All participants were Caucasian, this being the predominant ethnic group in Spain, and who ask for treatment more frequently and have more access to specialized health services. Participants were referred by clinicians from collaborating centers and all of them were in therapeutic programs for detox, mental disorder or both.

Admission criteria included: a) male sex, b) age between 19 and 55 years, c) schizophrenia or Major depression diagnostic according to the DSM-IV-TR criteria (American Psychiatric Association, 2002) in psychiatric treatment and with stabilized pathology a and d) SUD diagnostic for DD and SUD group. Participants were in remission of addiction and were included if they had been abstinent for 6 months or longer after confirmation. In the DD group, the comorbid mental disorder was primary and not induced by the SUD. Nicotine and caffeine consumption were accepted as non-addictive behaviors.

### 2.2. Materials and measures

Information was collected by means of a structured interview of sociodemographic (age, marital status, social class, schooling and economic status) and clinical variables (diagnosis, psychiatric and substance use family history, age of onset of the disorder and/or consumption, relapses, abstinence periods, type of drug used, suicidal attempts, the presence of organic pathology and medication, and daily number of sleep hours). Each patient had been diagnosed using the Structural Clinical Interview for DSM-IV-TR Axis I Disorders (SCID-I; First et al., 2000), confirming with the SCID-I that the schizophrenia and depression diagnoses in the DD group were primary and not induced. Smokers were administered the Fagerström test of nicotine dependence, Spanish version (Becoña and Vázquez,

1998). Additionally, the Clinical Global Impression (CGI; National Institute of Mental Health, 1976) was applied as a subjective measure of the clinical severity of each participant. The severity of the psychotic symptomatology, which is known to be related to personality (Hori et al., 2008) in schizophrenic patients, was measured using the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987) in its Spanish version (Peralta and Cuesta, 1994). The Hamilton Depression Rating Scale (HDRS; Hamilton, 1960) in its Spanish version (Ramos-Brieva and Cordero-Villafafila, 1988) was used to measure the depressive symptomatology in depressed patients. Most of them suffered from recurrent depression, it also being known that their personality profile differs from those with a single episode (Teraishi et al., 2015).

Personality assessment included the Temperament and Character Inventory-Revised (TCI-R; Cloninger, 1999) in its Spanish computerized version (Gutiérrez-Zotes et al., 2004). The TCI-R has 240 items in a five-point Likert scale and gives information about 7 dimensions: 4 of Temperament and 3 of Character. The four dimensions of Temperament are: *Novelty Seeking*, related to the system of behavioral activation or reward; *Harm Avoidance*, which reflects the activity of the system of behavioral inhibition or punishment; *Reward Dependence*, related to social reinforcement and sensitivity to social stimuli and *Persistence*, which involves the tendency to maintain behavior in extinction conditions. The three dimensions of Character are: *Self-directedness*, the capacity to regulate behavior in order to adjust it to one's principles, goals, and personal beliefs; *Cooperativeness*, which involves the subject's prosocial behavior as a measure of social adaptation; and *Self-transcendence*, related to the subject's identification with everything conceived as essential and consequential parts of a unified whole (Pedrero, 2013). We consider the direct scores and also the percentiles in order to compare with Spanish norms (Gutiérrez-Zotes et al., 2004).

### 2.3. Procedure

The Research Committee of the University of Barcelona approved the protocol, and the study complied with the tenets of the declaration of Helsinki. Each participant signed an informed consent after the investigators explained the objectives, procedure and the voluntary nature of their participation.

The instruments were self- or hetero-administered, depending on the psychopathological and cognitive characteristics of the patients under the criteria of the investigators. All the participants were able to understand and answer properly the information being asked, although in some DD and SMI the hetero-administered option was required as well as establishing intra-session resting periods. Participants benefited by obtaining a report of their results. This study is part of a larger project on clinical characteristics, neurocognitive functioning and personality traits in patients with DD.

### 2.4. Data analysis

Descriptive statistics were calculated (frequency, mean and standard error) for sociodemographic and clinical variables. The reliability of the TCI-R scales for the total sample and for each group was assessed through the Cronbach's  $\alpha$  coefficient. The differences among groups were explored using univariate analyses of variance (ANOVA) for the continuous data and the Chi Square tests in the case of variables with nominal scales. Multiple Analyses of Covariance (MANCOVA) were performed considering the total score of each dimension of the TCI-R as a dependent variable and taking the three groups of patients (DD, SUD, and SMI) as factors. Another MANCOVA was performed on only two groups of patients (DD and SMI) and the clinical diagnostic (schizophrenia and depression) as factors. Age was considered as a covariable to control for possible effects. Two MANCOVA were performed in each case, one with dimensions of Temperament and the other with dimensions of Character of the TCI-R. The partial eta-square ( $\eta_p^2$ ) was obtained as a measure of size effect, considering that a  $\eta_p^2$  of 0.01 is small, 0.04 moderate and 0.1 large. The observed statistical power for significant main effects ranged from 0.673 to 0.997. Post-hoc comparisons were performed by Bonferroni's tests. Statistical analyses were performed using the SPSS/PC+ statistics package (version 17.0) and statistical tests were bilateral with type I error set at 5%.

## 3. Results

### 3.1. Sociodemographic data

Descriptive statistics of sociodemographic variables are shown in Table 1 taking the three groups of patients and the clinical diagnosis. The groups were different in age ( $F_{(2,99)}=3.417$ ;  $p=0.037$ ;  $\eta_p^2=0.065$ ), with higher scores for SMI patients than SUD patients ( $p=0.011$ ). The predominant marital status in all groups was "Single", with higher scores for SMI in comparison to SUD patients ( $\chi^2=9.173$ ;  $p=0.010$ ). The patients in the SUD group

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