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Personality profiles in substance use disorders : do they differ in clinical symptomatology, personality disorders and coping?

Personality Profiles in Substance Use Disorders : Do they differ in Clinical Symptomatology, Personality Disorders and Coping ?

Santens, E[1*], Claes, L.[2,3], Dierckx, E[1,4]., Luyckx, K[1]., Peuskens, H.[1],   Dom, G[2,5].

[1] *Alexian Psychiatric Hospital, Tienen, Belgium*
[2]*Katholieke Universiteit Leuven, Leuven, Belgium*
[3] *Universiteit Antwerpen, Antwerpen, Belgium*
[4] *Vrije Universiteit Brussel, Brussels, Belgium*
[5] *Multiversum, Psychiatric Hospital, Boechout, Belgium*

[*]Correspondence to: Kliniek Alexianen Tienen, Liefdestraat 10, 3300 Tienen
E-mail address: els.santens@fracarita.org
Tel: +32 16807511
FAX: +32 16821308

Abstract

Background
Personality traits are considered to be important risk factors in the etiology of substance use disorders (SUDs) and therefore developing strategies to identify more homogenous subgroups of patients could possibly result in more personalized treatment approaches.

Research questions
We explored wether it is possible to establish subgroups of patients based on reactive (BISBAS)/ regulative (effortful control) temperamental factors in our sample of inpatients with a SUD. Further, we investigated differences in the identified subgroups with respect to clinical symptoms, personality disorders and coping.

Methods
In total, 712 adult patients (68,1% males, mean age participants 45.7 (SD=11.25) admitted to a specialized inpatient treatment program for substance use disorders participated in this study. The computerized self-report questionnaires administered were the Behavioral Inhibition/Behavioral Activation System Scales (BIS/BAS), the Effortful Control Scale (ECS) from the Adult Temperament Questionnaire Short-Form, the Symptom Checklist-90-Revised (SCL-90-R), the Utrecht Coping List (UCL) and the Assessment of DSM-IV Personality Disorders (ADP-IV).

Results
According to clusteranalysis we found three clusters: a "Resilient group, an "Anxious" group and a Reward Sensitive group. The Anxious group showed the highest scores on each of the clinical symptoms, the Resilient group consistently displayed the lowest scores and the Reward-Sensitive group had overall in between scores.

Conclusions
Clinically relevant subgroups of SUD inpatients in terms of reactive and regulative temperament can be established. This study provides new insight in understanding the role of temperament subtypes in SUDs and how this can help to tailor therapeutic interventions to individual needs.

Keywords
Substance use disorder; Personality; Temperament; Self-control

1. Introduction

Substance use disorders (SUDs) are highly prevalent psychiatric disorders in our society with for many patients a poor treatment outcome (drop-out in therapy and relapses)(Witchen et al.,2011). SUDs are etiological heterogenous disorders with many possible contributing factors (Oslin, 2011). Of those, differences in personality and temperamental factors are important (Bijttebier et al., 2009, Corr, 2008) and increasingly research highlights the role of impulsivity especially in the initiation and continuation of SUDs (Dawe& Loxton, 2004; Dom, 2007; Stevens,2014). Developing strategies to identify more homogenous subgroups of patients with SUDs, based upon personality dimensions, could possibly result in more personalized approaches to treatment instead of the common used standard treatment programs.

Within this frame Gray's Reinforcement Sensitivity Theory (Gray, 1970, 1982; Gray & McNaughton, 2000) can be seen as a suitable conceptual model to operationalize temperamental factors (in terms of behavioral approach (BAS) and behavioral inhibition (BIS) sensitivity) and top down control in terms of effortful control. The BIS is sensitive to stimuli of punishment, non-reward, and novelty (Fowles, 1980). Higher BIS sensitivity results in a higher proneness to anxiety (Carver & White, 1994) and as such relates to the personality dimension of Anxiety. The BAS (Fowls, 1980) is activated to signals of reward or non-punishment . In terms of individual differences in personality, higher BAS sensitivity is reflected in higher proneness to engage in approach behavior and to experience positive feelings (Carver & White, 1994, Claes et al., 2009) and as such relates to the trait Impulsivity/reward sensitivity (Bijttebier et al., 2009).

Although several studies report significantly positive associations between BIS/BAS sensitivity and substance use/abuse, there are no clear-cut relations found between BIS/BAS levels and SUDs due to different types of populations (non-clinical and clinical), different age groups (adolescents, adults), different types of product (alcohol only, drugs only, …), different scales (e.g. BAS drive, BAS fun seeking, BAS reward responsiveness). Some studies found a direct link between BAS/BIS levels and substance use, others found an indirect link (e.g. cue-elicited craving, or positive expectancies of drinking…).

Concerning the role of BAS several studies found positive associations both in clinical and non- clinical samples between BAS sensitivity and alcohol abuse (e.g. Franken & Muris, 2006; Grau & Ortet, 1999; Hundt et al., 2008; Johnson et al., 2003; Jorm et al., 1999; Kimbrel et al., 2007; Knyazev et al., 2004; Loxton & Dawe, 2006, 2007; Loxton et al., 2008; O'Connor et al., 2009, Pardo et al., 2007), illicit drug abuse (Franken & Muris, 2006; Hundt et al., 2008; Kimbrel et al., 2007), and tobacco use (O'Connor et al., 2009). BAS sensitivity emerged as a significant predictor of reactivity to alcohol cues (Kampouropoulos, 2001, 2004: BAS reward responsiveness scale), cue-elicited craving (Franken, 2002) and Positive Alcohol Expectancies (PAEs) (Wardell, 2012: BAS fun seeking scale). Thus, most research addressing the role of BAS sensitivity in SUDs both in clinical and non-clinical samples show a relation between high BAS sensitivity and substance use/abuse.

The role of BIS sensitivity in SUDs however is much less clear. Most studies report a negative correlation between BIS sensitivity and alcohol abuse (Franken & Muris, 2006, Kimbrel et al., 2007, Pardo et al., 2007), illicit drug abuse (Hundt et al., 2008, Kimbrel et al.,2007), and both alcohol and drug use (Genovese & Wallace, 2007) or found no association (Jorm et al, 1999, Knyazev, 2004, Loxton & Dawe, 2006, 2007, Loxton et al, 2008, O'Connor et al; 2009)). This might reflect that high

BIS can be a protective factor against developing a SUD as the subject is anxious for the possible negative effects of taking substances. However, a few studies showed an association between high BIS and negative urge for alcohol, withdrawal relief craving and high negative affectivity (Kampouropoulos, 2004, Heinz, 2003, Taylor et al., 2006). This may point to negative reinforcement drinking in high BIS individuals, i.e. drinking to cope with anxiety and negative affect (Kushner et al., 1994, Wardell, 2012). Taken together, studies exploring the relation between BIS/BAS have been mostly done in non-clinical populations (students) and specifically for BIS, findings are inconsistent.

In addition to behavioral activation and inhibition the dimension of effortful control (EC) has recently gained interest in the etiology of psychopathology. Effortful Control (EC), defined as the ability to regulate temperamental reactivity, is considered to be an important component of top-down regulation (Rothbart, 1989) and clinical research suggest that EC may play an important role in protecting against psychopathology (Rothbart and Sheese, 2006). Several studies examined the role of EC in SUDs whereby low EC has been found to relate to SUD at all stages of addiction (Cheetham et al., 2010, Peeters et al. 2017). High EC was linked to less substance use (Nigg et al., 2004), and a lower drinking frequency (Wong & Rowland, 2013). Currently studies have explored the role of either BIS/BAS sensitivity or EC in SUDs but to our knowledge, only very few studies have combined reactive temperament, particularly Gray's RST, with an investigation of effortful processes that can modulate reactive tendencies for describing different subgroups of adult patients with a SUD. (Willem et al., 2010,2011: adolescent population).

This study aimed to expand the existing literature on BIS/BAS, EC and SUDs. Within a large, real-life clinical sample of patients, we explore if it is possible to establish subgroups of patients based on reactive/regulative temperamental factors. Further, we searched for differences between the identified subgroups on clinical symptoms, personality disorders and coping-style. Based on the literature we expected to find two clusters of personality profiles: an impulsive/disinhibited group with high reward-sensitiveness (high BAS, low BIS) and an anxious/inhibited group (low BAS, high BIS). In both groups we expected to find rather low levels of effortful control, as there is assumed that a high level of self-control (EC) is a protective factor in developing psychopathology (Nigg, 2006; Rothbart and Sheese, 2006). Further, we explored if the identified clusters differed in clinical symptomatology, personality disorders and coping-styles.

2. Methods

2.1 Participants and procedure

In total, 712 consecutive admitted adult patients (68,1% males and 31,9% females) on a specialized, inpatient treatment program for SUDs in a Psychiatric Hospital in Belgium (Tienen) participated in this study. The diagnosis of SUD (dependence or abuse) was based on DSM-IV-TR criteria (APA, 2000) by an experienced psychiatrist (ES, HP). Mean age of the participants was 45.7 years (SD = 11.25). The computerized self-report questionnaires were administered during the second week of admission (after detoxification) on the addiction ward. Abstinence was monitored by breathalizers and urine drug tests. All patients signed an informed consent paper and the research was approved by the ethics committee of the hospital.

2.2. Instruments

2.2.1. Behavioral Inhibition and Activation
The Behavioral Inhibition/Behavioral Activation System Scale (BIS/BAS; Carver & White, 1994) is a self-report questionnaire that consist of 24 items witch are rated on a 4-point Likert scale (ranging from 1= *I totally agree* to 4 = *I totally disagree*). It measures the reactivity of two motivational systems i.e. behavioral activation system and behavioral inhibition system. The BIS responds to cues associated with punishment and non -reward, the BAS reflects sensitivity to reward. The Dutch version of the BIS/BAS scales (Franken, Muris, & Rassin, 2005) has shown to have an adequate reliability.
The BIS and BAS total scales demonstrated acceptable internal consistency in the present sample (α= 0.76 and 0.85 respectively).

2.2.2 Effortful Control
The 19-item Effortful Control Scale (ECS) of the Adult Temperament Questionnaire Short-Form was used to measure self-regulatory capacity (Rothbart et al, 2000). Participants rated their general capacity to exert control over their behavior on a 7-point Likert scale (1= *not at all applicable*, 7 = *completely applicable*). The Effortful Control Scale has three subscales: attentional control, activation control and inhibition control. We used the ECS total score which demonstrated acceptable internal consistency in the present sample (α= 0.80).

2.2.3 Symptom –Checklist-90-Revised
The Symptom Checklist-90 Revised (Dutch version) is a questionnaire that assesses severity of psychological symptoms of depression (α = 0.93), anxiety (α =0.91), agoraphobia (α=0.85), somatizing problems (a=0.84), insufficiency of thought and behaviour (α=0.91), hostility (α=0.77), sleeping problems (α=0.80), distrust and interpersonal sensitivity (α= 0.87). Patients are asked to rate the 90 items on a five-point Likert scale (1= *not present*, 5= *extremely present*). The internal consistency, test-retest reliability and convergent validity of this measure in adult psychiatric outpatients is supported by previous research (Arindell et al., 1986, 2004a).

2.2.4. ADP-IV
The Assessment of DSM-IV Personality Disorders (Schotte & De Doncker, 1996), a 94-item Dutch self-report questionnaire, assesses the PDs criteria of the 10 personality disorders, described in the DSM-IV-TR (American Psychiatric Association, 1994). Items on the ADP-IV are first rated on the typicality of the trait to the respondent (1= *totally not*, 7= *totally true*). For items that are rated as applicable at a moderate or higher level (>5), the participant also has to rate the distress for the participant or his/her environment on a 3-point Distress scale(1= *totally not*, 3= *almost always*). The ADP-IV can be used for categorical and dimensional diagnostic approaches of PDs. Previous research supports the internal consistency of the ADP-IV (Schotte et al., 1998) as well as the differential validity (Schotte et al., 2004.)
The dimensional scalescores demonstrated marginally acceptable to acceptable internal consistency in the present sample (α = 0.68- 0.87).

2.2.5. UCL

The Utrecht Coping List is a self-report questionnaire with 47 items assesses how people usually react confronted with stressfull situations. (Oldehinkel, Koeter, Ormel, & Van den Brink, 1992). There are 7 scales to distinguish different coping styles namely an active (α = 0.86), avoidant (α =0.73) or passive coping style (α=0.80), whether they seek social support (α =0.86) or search for reassuring thoughts (α =0.64), they also can express their emotions (α=0.62) or have a palliative attitude (α =0.68). The participants must rate their answers on a 4 point Likert scale (1= *rare*, 4= *very often*).

The UCL has been found to have satisfactory psychometric properties in a Dutch population (Schreurs et al., 1993).

2.3. Data analyses

To identify different SUDs subtypes based on reactive and regulative temperament dimensions, we performed a two-step cluster analysis on the standardized BIS/BAS and EC scale scores (i.e., *z*-scores). Cluster analysis aims to group patients into relatively homogeneous clusters in such a way that patients within one cluster have more in common than they do with patients assigned to other clusters (Gore, 2000). First, a hierarchical cluster analysis was carried out using Ward's method based on squared Euclidian distances. Second, these initial cluster centers were subsequently used as non-random starting points in a k-means clustering procedure (MacQueen, 1967), resulting in an optimized cluster solution. To validate the clusters, we made use of the multivariate analysis of variance (MANOVAs) with the SUDs subtypes as independent variable and clinical symptomatology, personality disorders, and coping as dependent variables.

3. Results

3.1. Clustering solution

A three cluster solution gave the best fit (see Table 1): the first cluster (n=269) was characterized by low BIS and BAS scores and high EC scores, and was labelled the « Resilient » group (high functioning). The second cluster (n=226) was characterized by high BIS scores, moderate BAS scores and low EC scores and was labelled the « Anxious » group (Overcontrolled/Inhibited). The third cluster at last (n=205) was characterized by high BAS scores, moderate to low BIS scores and moderate EC scores and was labelled the « Reward- Sensitive » group (Undercontrolled/Disinhibited) (see Fig 1).

We found more women than men in Cluster 2 , whereas more men than women were present in cluster 1 and 3 (*Chi square*(2)=35.34, p < .001). The results of the ANOVA showed a statistically significant difference in age between the three clusters ($F(2,697) = 24.82$; $p < .001$). Post-hoc comparison learned that the patients in cluster 1 (*M*=49.27, *SD*= 10.10) were significant older than the ones in cluster 2 (*M*=44.19, *SD*=11.43) and 3 (*M*=42.63, *SD*=11.26). The ages of patients in cluster 2 and 3 were not significantly different.

3.2. Cluster differences on Axis-I related psychopathology

3.2.1. Clinical symptomatology
The MANOVA comparing the three clusters (independent variable) on clinical symptoms as assessed by means of the SCL-90 (dependent variable) showed significant differences (Wilks *Lambda* = .81, *F*(18, 1378) = 8,75, *p*= .000) between the three groups. The univariate analysis showed differences on all domains.

3.2.2. Coping

The results of the MANOVA with the three clusters as independent variable and the UCL scales as dependent variables showed overall significant differences between the three groups (Wilks *Lambda* = .72, *F*(14,1382)="17.62" *p*=.000). The Resilient group (cluster 1) scored significantly higher on 5 of the 7 coping styles except on active coping (same score as cluster 3) and reassuring thoughts (same score as cluster 2). Cluster 2, labelled as the Anxious group, scored higher on the passive and avoidant coping style and the lowest on the active coping style. The third cluster, the Reward-Sensitive group, had the highest scores on expression of emotions and reassuring thoughts as coping style. Patients of Cluster 2 and 3 scored significantly higher on palliative coping-style and social support seeking compared to patients of Cluster 1 (see Table 2).

3.3. Cluster differences on Axis-II psychopathology

MANOVAs comparing the three clusters on Axis-II pathology assessed by the ADP-IV revealed significant overall differences (Wilks' *Lambda*: .053, *F* (12, 684)= 1027.73, *p*= .000). The Resilient group consistently displayed the lowest scores on Cluster A, B and C PDs except for the schizoid and avoidant personality disorder where they did not differ from the Reward-Sensitive group. Consistent with our expectations we found the highest scores in the Anxious group on Cluster C pathology (avoidant, dependent and obsessive compulsive personality disorder) and on the Borderline and Histrionic personality disorder for the Cluster B pathology. In the Reward-Sensitive group we found as expected the highest scores on the antisocial and narcissistic traits (Mowlaie, 2016) although they were nog significant different in comparison with the Anxious group (see Table 3).

4. Discussion

Based upon measures of reactive temperament (Gray's RST, 1982) and self-control/self regulatory temperament (EC, Rothbart, 1989), we coud identify three personality profiles in SUD inpatients. This contrasts with our initial hypothesis to find a two cluster solution according to the literature namely a "Reward Sensitive" group (high BAS, low BIS) and an "Anxious" group (high BIS, low BAS).

Our results showed a three cluster solution. A "Resilient" group characterized by low BAS, low BIS and high EC. An "Anxious" group characterized by high BIS, moderate BAS and low EC and

finally, a "Reward Sensitive" group with high BAS, moderate to low BIS and moderate EC levels. These subgroups are in line with earlier studies, identifying, within non-clinical samples, three major personality prototypes i.e. the resilient, the overcontrolled and the undercontrolled (Block , 1970, Boehm et al., 2002). Also in a population of eating disordered (ED) patients a similar classification was found: an Overcontrolled/Inhibited group (high BIS, low BAS and moderate EC), an Undercontrolled/Dysregulated group (high BAS, moderate BIS, low EC) and a Resilient group (high EC, moderate BAS and low BIS) (Turner et al., 2014).

We also examined whether the three personality profiles of SUD patients could be differentiated in clinical symptomatology, personality disorders and coping-style. As expected the "Resilient" group was the group with the lowest levels of clinical symptomatology. The second group labeled the "Anxious"(inhibited) group had the highest levels of psychopathology on all clinical symptoms (more specific on anxiety and depression), on passive and avoidant coping style, and more cluster B and C personality traits. Thus they reported overall more internalizing psychopathology as the other two clusters. These findings are consistent with other studies (Wardell et al., 2012) who found that strong BIS tended to be associated with high anxiety levels which made those persons prone at risk for drinking to cope; by drinking alcohol they felt less tense and that might reinforce their positive beliefs about drinking. In the study of Kambouropoulos and Staiger (2004) BIS sensitivity in aversive drinking situations was positively associated with negative urge for alcohol, so alcohol intake was seen here as withdrawal relief craving. Another study by Taylor et al. (2006) in a population sample of university students found a "high affectivity profile" with strong BIS and high levels of negative affectivity. We also found that negative emotionality, or the fact to experience psychological distress and negative mood states as the second dimension of personality most frequently associated with an alcohol use disorder in a study of Mulder (2002). In our sample most female patients were found in this cluster. In line with the extensive literature that links BAS sensitivity to SUDs we also distinguished a "Reward Sensitive" group as third group in our study. The "Reward Sensitive" group had on clinical symptomatology an in-between position (scores between cluster 1 and 3), on coping style the highest score on expression of emotions and searching for reassuring thoughts, and more cluster B traits on the ADP-IV, especially the antisocial and narcissistic personality disorder. In this group we found more male than female patients.

 In sum, the present findings are in line with recent literature that suggests that clinically relevant subgroups of SUD patients can be distinguished, and that these personality profiles may have important implications for assessment and treatment (Oslin, 2011, Staiger et al., 2007, Belcher et al., 2014).

The use of a brief-self report questionnaire, that is easily implementable within standard clinical practice, to classify each patient in one of these three subgroups during the intake assessment could provide targets for better treatment matching. A better treatment match and therapy focused on the specific pathological domains could in their turn lead to a better treatment outcome. For example, in our sample the "Resilient" group may not need the same therapy intensity as the other two groups (less comorbidity). The "Anxious" group who has overall the most pathology should receive more intense treatment and /or a longer duration of treatment. In the Reward Sensitive group alternative sources of reward should be considered for example contingency management (see also Staiger et al., 2007 and Rawson et al., 2002, 2006, Garcia Rodriguez et al, 2007). Moreover, current theories of psychopathology (Nigg, 2006) emphasize the role of effortful control as a protective factor so the development and implementation of a treatment module that strengthen executive/cognitive control possibly could provide better treatment outcome. In the
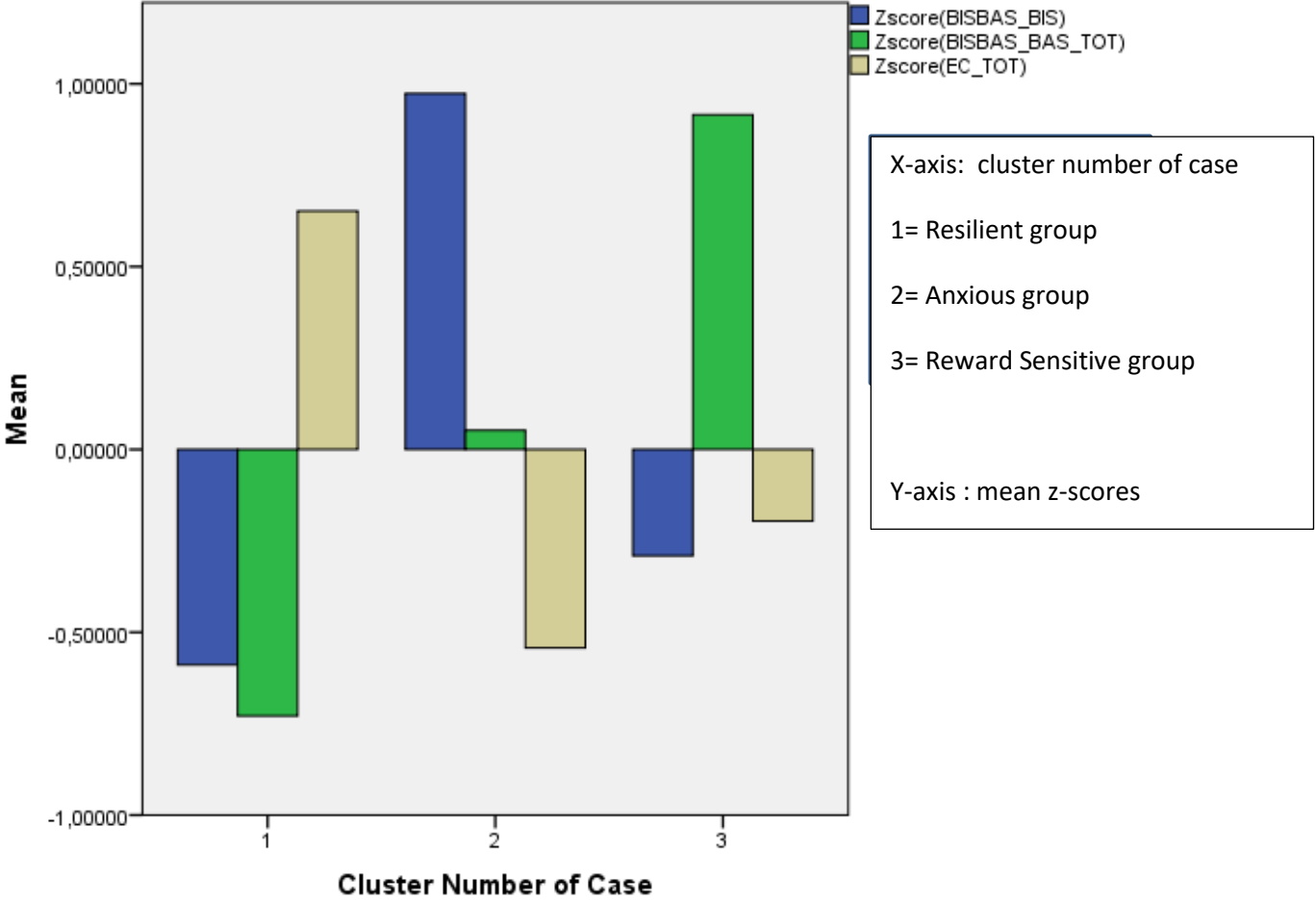
patient group with low EC strategies aimed at strengthening the influence of effortful/executive control processes such as cognitive training could be a promising treatment (Alfonso, 2011).

Strenghts of our study are the large real-life clinical sample and a comprehensive set of personality assessments. However, a number of limitations have to be mentioned. First, we focused only on inpatients with a SUD (abuse/dependence), so our results need to be interpreted carefully when considering other clinical and non-clinical samples. In addition, we did not take into account the use of antidepressant or anxiolytics on the time of administering the self-report questionnaires which could have had an influence on the BIS sensitivity and symptomatology.

Also, we only used self-report questionnaires to assess temperament and severity of psychiatric symptomatology which results in a risk of reporting biases (over or underestimation of complaints). The validity of self-report measures may be particularly problematic in relation to SUDs, due to reduced self-insight and impaired self-awareness (Goldstein et al., 2009; Goldstein & Volkow, 2011). Further research should focus on a combination of self-report questionnaires and neurocognitive task to see what the impact is of impulsive/reactive and cognitive/effortful control processes in the different phases of an addiction.

A final limitation was the cross-sectional nature of this study. Understanding the impact of personality on SUDs requires research with a variety of methods, including prospective and experimental designs. Without this kind of research we cannot establish whether the observed differences in personality, and in co-occurring psychiatric symptoms, predispose the individual to develop a SUD or are the result of the long-term use of a substance. Despite these limitations, we believe that this study provides new insight in understanding the role of temperament subtypes in SUDs and how this can help to tailor therapeutic interventions to individual needs.

Figure 1: Personality cluster scores on standardized personality measures

X-axis: cluster number of case

1= Resilient group

2= Anxious group

3= Reward Sensitive group

Y-axis : mean z-scores

Table 1: **Means and standard deviations on Clinical symptomatology (SCL-90) for the three clusters**

	Cluster1		Cluster2		Cluster3		F	Post-hoc comparisons
	Resilient		Anxious		Reward-Sensitive			
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*		
AGO	8.66	(3.11)	11.67	(5.33)	9.37	(3.70)	34.83*	1<2, 1=3, 2>3
ANX	15.41	(5.96)	21.76	(8.24)	17.65	(6,78)	51.07*	1<2, 1<3, 2>3
DEP	29.99	(11.22)	40.30	(14.12)	33.20	(11.30)	44.50*	1<2, 1<3, 2>3
HOS	7.75	(2.39)	9.07	(3.31)	8,.89	(3.18)	14.75*	1<2, 1<3, 2=3
IN	15.65	(5.81)	21.03	(7.08)	17.17	(5.97)	46.51*	1<2, 1<3, 2>3
DIS	27.55	(8.59)	36.10	(12.49)	29.85	(9.00)	45.64*	1<2, 1<3, 2>3
SLE	6.32	(3.10)	7.61	(3.44)	6.94	(3.35)	9,60*	1<2, 1<3, 2>3
SOM	17.87	(6.13)	21.83	(7.25)	19.53	(6.91)	21.25*	1<2, 1<3, 2>3
Tot	142.94	(41.05)	187.38	(54.98)	158.21	(43.90)	56.26*	1<2, 1<3, 2>3

AGO = Agoraphobia; ANX = Anxiety; DEP = Depression; HOS = Hostility; IN =Insufficiency of thought and behavior; DIS = distrust and interpersonal sensitivity; SLE = sleeping problems; SOM = Somatizing problems

*p < 0.001

Table 2: Means and standard deviations concerning different coping styles (UCL) for the three personality clusters

	Cluster 1		Cluster 2		Cluster 3		F	Post-hoc comparisons
	Resilient		Anxious		Reward-Sensitive			
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*		
ACT	17.90	(4.06)	15.77	(3.90)	17.94	(4.86)	19.54*	1>2, 1=3, 2<3
EXP	5.30	(1.60)	5.93	(1.83)	6.28	(1.89)	19.06*	1<2, 1<3, 2<3
REA	11.51	(2.29)	11.68	(2.59)	12.58	(2.81)	11.13*	1=2, 1<3, 2<3
PAL	17.13	(3.22)	19.20	(3.58)	19.02	(3.58)	27.61*	1<2,1<3, 2=3
PAS	13.12	(3.90)	17.26	(4.26)	14.42	(3.68)	68.82*	1<2, 1<3, 2>3
SOC	11.60	(3.46)	13.03	(4.10)	12.86	(4.01)	10.33*	1<2, 1<3, 2=3
AVOI	16.13	(3.59)	18.10	(4.03)	16.90	(3.45)	17.60*	1<2, 1<3, 2>3

ACT = active coping-style; EXP = expression of emotions; REA =reassuring thoughts; PAL = palliative coping-style; PAS = passive coping-style; SOC = social support seeking; AVOI = avoidant coping-style

*p < 0.001

Table 3 Means and standard deviations on Axis-II related pathology for the three personality clusters

	Cluster1		Cluster2		Cluster3		F	Post-hoc comparisons
	Resilient		Anxious		Reward-Sensitive			
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*		
ParanoidPD	15.00	(6.26)	20.58	(7.77)	18.73	(7.40)	39.06**	1<2, 1<3, 2>3
SchizoidPD	17.72	(6.97)	19.50	(7.10)	17.60	(5.97)	5.65*	1<2, 1=3, 2>3
SchizotypalPD	18.68	(7.25)	25.33	(9.22)	21.67	(8.05)	40.57**	1<2, 1<3, 2>3
Antisocial PD	13.49	(5.34)	17.09	(6.59)	18.12	(7.06)	36.36**	1<2, 1<3, 2=3
Borderline PD	24.01	(9.16)	36.28	(10.26)	30.31	(10.34)	94.63**	1<2, 1<3, 2>3
Histrionic PD	16.10	(6.03)	23.15	(7.33)	21.14	(7.08)	71.24**	1<2,1<3, 2>3
NarcissisticPD	16.60	(5.78)	21.19	(7.43)	22.18	(8.17)	43.26**	1<2, 1<3, 2=3
AvoidantPD	16.18	(7.66)	24.35	(9.14)	17.08	(6.88)	73.65**	1<2, 1=3, 2>3
DependentPD	16.80	(6.50)	25.37	(8.30)	19.28	(7.28)	86.13**	1<2, 1<3, 2>3
Obsessive compulsivePD	21.32	(6.84)	26.67	(7.26)	23.34	(7.02)	35.76**	1<2,1<3,2>3

*p < 0.005
** p < 0.001

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