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The structural core of dual diagnosis: Personality structure profiles in substance use disorders with and without Comorbid personality pathology

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ABSTRACT

The coexistence of substance use disorders (SUDs) and personality disorders (PDs) is a complex and frequent phenomenon that presents significant clinical challenges. This study adopted Kernberg's Object Relations Theory (ORT) to explore differences in profiles of personality structure among SUD patients with and without comorbid PD. A total of 60 nonclinical participants, 45 outpatients with SUDs, and 42 inpatients with both SUD and PD (dual diagnosis, DD) were assessed using the STIPO-R, a semi-structured interview grounded in ORT. Group differences were analyzed across all domains and subdomains of the interview. The STIPO-R effectively distinguished both DD and SUD patients from nonclinical participants across all domains and subdomains of personality functioning. However, after adjusting for age and gender, no significant differences emerged between DD and SUD groups. Both clinical groups showed comparable levels of impairment across identity, object relations, defenses, aggression, moral functioning, and narcissism. Our findings support the utility of the STIPO-R and highlight the relevance of dimensional models in capturing personality dysfunction in SUD populations, even in the absence of comorbid PD.

1. Introduction

Comorbidity, i.e., the coexistence of two or more psychiatric disorders, is now recognized as a widespread phenomenon (Steel et al., 2014). Around 50% of individuals with one disorder meet criteria for a second at the same time (Caspi et al., 2014). Dual Disorders (DD) consist in the co-occurrence in the same individual of addictive disorders, including substance use and behavioral addiction, and other mental disorders (Szerman et al., 2022). Studies comparing individuals with SUD alone to those with SUD and other psychiatric disorders (e.g., mood or anxiety disorders) consistently report greater overall clinical severity in comorbid groups (Marquez-Arrico et al., 2016, 2019) and emphasize the role of personality in differentiating between Dual Disorder and SUD-only patients. However, these studies do not disentangle the specific contribution of stable, structural features of personality. Over the past two decades, empirical studies have reported particularly high co-occurrence rates—30% to 75%—between substance use disorders (SUDs; including alcohol and drug abuse) and personality disorders (PDs; Di Pierro et al., 2014; Köck and Walter, 2018), underlining the clinical and public health relevance of the phenomenon. Personality pathology can affect symptoms, treatment response, outcomes, and the course of SUDs (Verheul & van den Brink, 2005). Patients with both PDs and SUDs (hereafter referred to as DD patients) are characterized by earlier onsent of substance use, greater dependence severity, frequent relapses, higher psychopathological burden, poorer social functioning, elevated suicide risk, and increased treatment dropout (Parmar and Kaloyja, 2018). Epidemiology studies further suggest that certain PDs, particularly antisocial and borderline personality disorders, are linked to more persistent substance use over time (Fenton et al., 2012). Importantly, treatment of SUD alone does not appear to lead to remission of the comorbid personality pathology, underscoring the need for integrated and personality-informed treatment approaches (McGlashan et al., 2000). The prevalence of PDs among individuals with SUD is roughly three times higher than in the general population (Verheul et al., 2005). Prior studies highlighted frequent comorbidity with borderline (BPD; Trull et al., 2018) and antisocial (ASPD; Rounsaville

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et al., 1998) personality disorders. However, comorbidity is also observed in other PDs, including paranoid (PPD), avoidant (APD), dependent (DPD), and obsessive-compulsive (OCPD) types (Langås et al., 2012). Cluster B disorders are additionally linked to positive expectancies about alcohol, which may exacerbate substance use (Guillot et al., 2022).

A trait-based perspective offers more nuanced insights into shared characteristics between SUDs and PDs. Meta-analyses show that individuals with SUDs tend to score higher on impulsivity, disinhibition, and neuroticism, and lower on agreeableness and conscientiousness (Kotov et al., 2010; Fodstad et al., 2022) — a profile also seen in those with ASPD or comorbid ASPD and SUD (Ruiz et al., 2008). These findings support the idea that impulsivity and risk-taking are central, shared features of both conditions (Volkow et al., 2016).

Prospective and retrospective research suggests that personality traits or disorders often precede substance use, pointing to potential causal roles in SUD development, maintenance, and worsening (Verheul, 2001). A meta-analysis identified high neuroticism as a risk factor for all common mental disorders, including SUDs (Jeronimus et al., 2016). NEO Five-Factor personality traits (Costa and McCrae, 2008) have been shown to predict sub-threshold alcohol problems over time, even after controlling for demographics and substance use at baseline (Schuckit et al., 2023). Similarly, self-harm/impulsivity in BPD predicted alcohol problems in young adults even after accounting for confounding variables (Stepp et al., 2005). Other findings suggest that high extraversion and low conscientiousness predict heavy alcohol use and transitions from moderate to heavy drinking (Hakulinen et al., 2015).

Conversely, substance use may also precede and contribute to personality dysfunction, though this path is less clear (Parmar and Kaloiya, 2018). Indeed, traits like antisociality, paranoia (Langås et al., 2012), and impulsivity (Juchem et al., 2024) often emerge after prolonged use. Distinguishing substance-induced behaviors from pre-existing personality patterns remains a clinical challenge.

DD patients' personalities have been mostly studied through categorical approaches, which have been criticized for failing to capture core personality dysfunctions (Morey et al., 2011). A dimensional, structural approach may thus offer a deeper understanding of DD. Kernberg's Object Relations Theory (ORT; Caligor et al., 2023; Kernberg and Caligor, 2005) blends dimensional and categorical perspectives. It describes three personality organization levels—neurotic (NPO), borderline (BPO), and psychotic (PPO)—based on identity integration, defense mechanisms, and reality testing. NPO entails stable identity, repression-based defenses, intact reality testing, and the capacity for deep relationships. BPO reflects identity diffusion, splitting-based defenses, and compromised intimacy; reality testing may falter under stress. PPO involves poor identity cohesion, primitive defenses, and impaired reality testing. To support clinicians, Kernberg (1984) developed the structural interview, later formalized in the Structured Interview for Personality Organization (STIPO; Stern et al., 2010; Hörz-Sagstetter et al., 2018) and its revision, the STIPO-R (Biberdzic et al., 2024; Clarkin et al., 2019). These semi-structured tools include standard questions, probes, and scoring guidelines.

DD patients' structural profiles have been explored with these tools. Di Pierro and colleagues (2014, 2020) used the STIPO and the Level of Personality Functioning Scale (LPFS; APA, 2013) applied to STIPO transcripts to compare DD patients, psychiatric patients with Axis I disorders, and nonclinical participants. DD patients showed more severe identity impairment than psychiatric patients—particularly in investment capacity, aggression, and moral functioning (Di Pierro et al., 2014). In LPFS terms, they were more impaired across all self and interpersonal domains except intimacy (Di Pierro et al., 2020). This supports the idea that DD patients present distinct personality profiles within a structural framework.

The primary aim of the present study was to characterize differences in personality functioning between individuals with substance use disorders with and without comorbid personality disorders, using the STIPO-R. Specifically, we examined group differences across STIPO-R domains between DD patients, SUD-only patients, and nonclinical participants. Based on the theoretical framework, prior comorbidity research, and previous STIPO findings, we hypothesized that DD patients would show greater impairment in personality functioning than SUD-only patients, while both clinical groups would show more impairment than nonclinical participants.

2. Methods

2.1. Participants

Demographic information divided by sample is reported in Table 1.

2.2. Measures

The Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al., 1997) is a semi-structured diagnostic interview designed to assess DSM-IV personality disorders. In the present study, the SCID-II was used to establish personality disorder diagnoses in the DD group and to exclude PD diagnoses in the SUD group. The SCID-II was employed to ensure consistency with the DSM-IV-TR–based diagnostic procedures routinely adopted in the participating clinical

Table 1
Demographic information partitioned into the nonclinical group (NC), the substance use disorders group (SUDs), and the dual-disorders group (DD).

		NC ($N = 60$)	SUDs ($N = 45$)	DD ($N = 42$)	Overall ($N = 147$)
Gender	Female	33 (55.0%)	9 (20.0%)	17 (40.5%)	59 (40.1%)
	Male	27 (45.0%)	36 (80.0%)	24 (57.1%)	87 (59.2%)
	Intersexual	0 (0%)	0 (0%)	1 (2.4%)	1 (0.7%)
Age	*Mean* (*SD*) [Range]	31.3 (±9.33) [20 -54]	44.2 (±10.2) [26 - 73]	34.1 (±9.05) [18 - 50]	35.8 (±10.9) [18 - 73]
Marital status	Single	33 (55.0%)	/	33 (78.6%)	66 (44.9%)
	Cohabiting	4 (6.7%)	/	0 (0%)	4 (2.7%)
	Married	16 (26.7%)	/	5 (11.9%)	21 (14.3%)
	Separated	1 (1.7%)	/	0 (0%)	1 (0.7%)
	Divorced	2 (3.3%)	/	3 (7.1%)	5 (3.4%)
Employment	Student	13 (21.7%)	/	5 (11.9%)	18 (12.2%)
	Employed	29 (48.3%)	/	7 (16.7%)	36 (24.5%)
	Unemployed	3 (5.0%)	/	30 (71.4%)	33 (22.5%)
	Retired	1 (1.7%)	/	0 (0%)	1 (0.7%)
	Other	10 (16.7%)	/	0 (0%)	10 (6.8%)
Education	Elementary School	0 (0%)	/	0 (0%)	0 (0%)
	Middle School	0 (0%)	/	12 (28.6%)	12 (8.2%)
	High School	25 (41.7%)	/	18 (42.9%)	43 (29.3%)
	Bachelor's Degree	13 (21.7%)	/	3 (7.1%)	16 (10.9%)
	Master's Degree	14 (23.3%)	/	6 (14.3%)	20 (13.6%)
	Post-graduate Degree	4 (6.7%)	/	0 (0%)	4 (2.7%)

Note. NC group: missing information on civil status, employment, and level of education for 4 participants, on age for 5 participants. SUD group: missing information on age for 6 participants. DD group: missing information on civil status for 1 participant, on education level for 3 participants.

services.

The *Structured Interview of Personality Organization-Revised* (STIPO-R) (Clarkin et al., 2019) is a 55-item semi-structured interview designed to dimensionally evaluate domains and subdomains of personality functioning. These domains allow understanding of the individual from an object relations model of personality and personality pathology (Kernberg and Caligor, 2005). Profile scores indicate closeness/distance to prototypical descriptions of neurotic, high-level borderline, and low-level borderline individuals (Biberdzic et al., 2024), in line with Kernberg's theory (Kernberg and Caligor, 2005). Each item is evaluated on a scale from 0 to 2. The rater further assesses the severity of the pathology for each domain on a 5-point clinical scale. For this study, we adopted the 5-point clinical scale, which allows the interviewer to also use his/her clinical impression and non-verbal and interpersonal cues to determine the score. In the present study, we used the Italian-adapted version of the instrument (Preti et al., 2026). The STIPO-R has demonstrated good internal consistency and reliability in our samples (α range = 0.73 - 0.85).

Both interviews were administered by trained clinical psychologists and graduate students in clinical psychology who had received specific training and supervision for the administration of the assessment protocol.

2.3. Statistical analyses

All analyses were conducted using R (version 4.2.2; R Core Team, 2020). Analysis of covariance (ANCOVA) was used to test differences in personality domains and subdomains of the STIPO-R between the three groups of nonclinical, SUDs, and DD participants. In line with the a-priori analytic plan and the power analysis, gender was included as a covariate in all primary models. To assess potential confounding effects of additional sociodemographic variables, between-group comparisons were conducted for age. Given significant group differences in age, this variable was subsequently included as an additional covariate in the final models. Educational level was not included in these comparisons or as a covariate due to substantial missingness concentrated in one group, which prevented reliable estimation. Estimated marginal means and 95% confidence intervals were computed using *emmeans* (Lenth, 2023) and *p*-values were Bonferroni-adjusted for multiple testing. Figures were created through the package *ggplot2* (Wickham, 2016). Effect sizes for the main group effects were quantified using partial eta-squared (ηp^2).

3. Results

Gender distribution differed significantly across groups ($\chi^2 = 15.71$, $p = .0015$). The SUDs group included a higher proportion of women (80%) compared to the NC group (45%), whereas the NC group included a higher proportion of men (55%) compared to the SUD group (20%); the DD group showed an intermediate distribution. In line with the a priori analytic plan (and the power analysis), gender was therefore included as a covariate in all primary models. Age also differed across groups, $F(2,133) = 21.99$, $p < .001$. Estimated marginal means were 31.3 ± 9.33 for the NC group, 44.2 ± 10.2 for the SUDs group, and 34.1 ± 9.05 for the DD group. Bonferroni-adjusted pairwise comparisons indicated that the SUDs group was older than the NC group ($\Delta_{age} = 12.9$ years, $p < .0001$) and the DD group ($\Delta_{age} = 10.1$ years, $p < .0001$), whereas the NC and DD did not differ ($\Delta_{age} = 2.8$ years, $p = .459$). Given these results, models were also adjusted for age (alongside gender).

The mean scores of personality structure in the three groups of participants and differences between groups are displayed in Table 2. Personality profiles for each group of participants are presented in Fig. 1. After adjusting for age and gender, no significant differences emerged between the DD and SUD groups across STIPO-R domains.[2] While gender effects were non-significant, age showed a consistent negative association with multiple STIPO-R domains, including *Interpersonal relations* ($\beta = -0.0207$, $t = -2.87$, $p < .01$), *General Defensive Functioning* ($\beta = -0.015$, $t = -2.28$, $p < .05$), *Lower-level defenses*, ($\beta = -0.019$, $t = -2.45$, $p < .05$) *Other-directed aggression* ($\beta = -0.018$, $t = -2.52$, $p < .05$), and *Moral Values* ($\beta = -0.019$, $t = -2.71$, $p < .01$), indicating lower levels of personality impairment with increasing age.

4. Discussion

Our study applied the STIPO-R to investigate the personality structure of individuals with co-occurring substance use and personality disorders (DD), substance use disorder alone (SUD), and nonclinical individuals (NC). Significant group differences between clinical (DD and SUD) and nonclinical groups emerged across all STIPO-R domains. DD and SUD patients showed greater impairment than nonclinical participants in Identity, Object Relations, General Defensive Functioning, Aggression, and Moral Values. No differences between DD and SUD groups were found when models were adjusted for age and gender. Results show that the STIPO-R can differentiate DD and SUD patients from nonclinical participants across all domains and subdomains, demonstrating sensitivity to psychological impairment even in clinical populations without full-blown personality pathology.

In discussions of psychiatric comorbidity, a key issue is whether the presence of a PD exacerbates or complicates SUD treatment (Lee et al., 2010). The co-occurrence of substance abuse and personality pathology is common and presents major challenges for clinicians (Parmar and Kaloiya, 2018). Yet, most studies remain largely descriptive, focusing on prevalence rather than offering clinically informative insights (Rounsaville et al., 1998; Sher and Trull, 2002). To address this gap, the present study compared personality organization across DD, SUDs, and NC groups, guided by Kernberg's theory of personality organization to ensure a more nuanced understanding of the psychological domains affected by personality pathology.

Our data indicate that DD and SUD individuals show greater identity impairment than the NC group, particularly regarding sense of self and others. Severe personality pathology is typically characterized by identity diffusion, including an unstable and polarized sense of self and others, maintained by splitting-based defenses (Morey et al., 2011; Richetin et al., 2017; Sharp and Oldham, 2023); while SUD individuals do not meet PD criteria according to the SCID-II, they still show notable identity dysfunction according to the STIPO-R that distinguishes them from the nonclinical group, possibly due to shared traits such as high impulsivity, low agreeableness, and conscientiousness (Fodstad et al., 2022).

DD and SUD patients also report more impaired defenses than NC individuals. Even in the absence of a personality disorder diagnosis, defensive functioning in SUD patients is still compromised; this may reflect the use of substances as maladaptive emotion regulation strategies, consistent with the self-medication hypothesis (McKernan et al., 2015). In this view, substance use may serve to manage distressing

[2] In unadjusted analyses, ANCOVAs indicated overall group differences, with the NC group consistently showing lower impairment than both DD and SUDs across domains. Some differences also emerged between DD and SUDs (e.g., higher impairment in DD in Sense of self $F = 23.28$, $\eta^2 = 0.25$; Sense of others: $F = 22.07$, $\eta^2 = 0.24$; Defenses: $F = 18.86$, $\eta^2 = 0.23$; Other-directed aggression: $F = 20.50$, $\eta^2 = 0.22$; Narcissism: $F = 38.67$, $\eta^2 = 0.34$; all $p < .001$), although these were no longer significant after controlling for age.

Table 2
STIPO-R's domains and subdomains: means (M), standard deviations (SD), *F*-distribution (*F*), and *p*-values (*p*), reporting differences between the nonclinical group (NC), the substance use disorders group (SUDs), and the dual-disorders group (DD).

STIPO's domains and subdomains	NC			SUDs			DD				
	M	SD	95% CI	M	SD	95% CI	M	SD	95% CI	*F*	ηp^2
Identity	1.56[a]	0.125	[1.34–1.78]	2.70 [b]	0.151	[2.41–3.00]	2.83 [b]	0.125	[2.58–3.08]	32.963***	0.34
Capacity to invest	1.46[a]	0.136	[1.19–1.73]	2.86 [b]	0.184	[2.50–3.23]	2.46 [b]	0.152	[2.16–2.77]	19.512 ***	0.23
Sense of self	1.56[a]	0.116	[1.33–1.79]	2.29 [b]	0.156	[1.98–2.60]	2.66 [b]	0.129	[2.40–2.91]	21.079 ***	0.24
Sense of others	1.66[a]	0.120	[1.42–1.89]	2.31 [b]	0.162	[1.99–2.63]	2.77 [b]	0.135	[2.50–3.03]	19.959***	0.24
Object Relations	1.40[a]	0.124	[1.18–1.62]	2.62 [b]	0.150	[2.32–2.92]	2.61 [b]	0.124	[2.36–2.85]	34.274***	0.35
Interpersonal relations	1.13[a]	0.112	[0.91–1.35]	2.31 [b]	0.150	[2.01–2.61]	2.06 [b]	0.125	[1.81–2.30]	21.5883***	0.25
Intimate relationships and sexuality	1.54[a]	0.141	[1.26–1.81]	2.32 [b]	0.190	[1.94–2.69]	2.52 [b]	0.157	[2.21–2.84]	14.567***	0.18
Internal working model of relationships	1.37[a]	0.105	[1.16–1.58]	2.50 [b]	0.142	[2.21–2.78]	2.51 [b]	0.118	[2.28–2.74]	33.311***	0.34
Defenses	1.54[a]	0.114	[1.32–1.77]	2.43 [b]	0.153	[2.13–2.73]	2.50 [b]	0.127	[2.25–2.75]	18.864***	0.22
Lower-level, primitive defenses	1.72[a]	0.119	[1.49–1.96]	2.51 [b]	0.160	[2.19–2.82]	2.69 [b]	0.132	[2.43–2.95]	13.35***	0.17
Higher-level defenses	1.85[a]	0.104	[1.65–2.06]	2.55 [b]	0.140	[2.28–2.83]	2.81 [b]	0.116	[2.58–3.04]	17.983***	0.22
Aggression	1.21[a]	0.101	[1.02–1.41]	2.61 [b]	0.136	[2.34–2.88]	2.81 [b]	0.112	[2.59–3.03]	61.500***	0.49
Self-directed aggression	1.27[a]	0.112	[1.05–1.49]	2.85 [b]	0.150	[2.56–3.15]	2.98 [b]	0.125	[2.73–3.23]	61.056***	0.48
Other-directed aggression	1.17[a]	0.113	[0.95–1.39]	1.76 [b]	0.153	[1.45–2.06]	2.21 [b]	0.126	[1.96–2.46]	18.100***	0.22
Moral values	1.17[a]	0.108	[0.96–1.38]	2.79 [b]	0.145	[2.51–3.08]	2.79 [b]	0.120	[2.56–3.03]	62.739***	0.49
Narcissism	1.36[a]	0.113	[1.13–1.58]	2.39 [b]	0.153	[2.09–2.70]	2.71 [b]	0.126	[2.46–2.96]	33.636***	0.34

Note. *** $=p < .001$. Means followed by the same superscripted letter (a, b, c) in a line are not significantly different at the 5% probability level. Post-hoc significance levels have been adjusted using the Bonferroni correction. Results are controlled for gender and age differences.

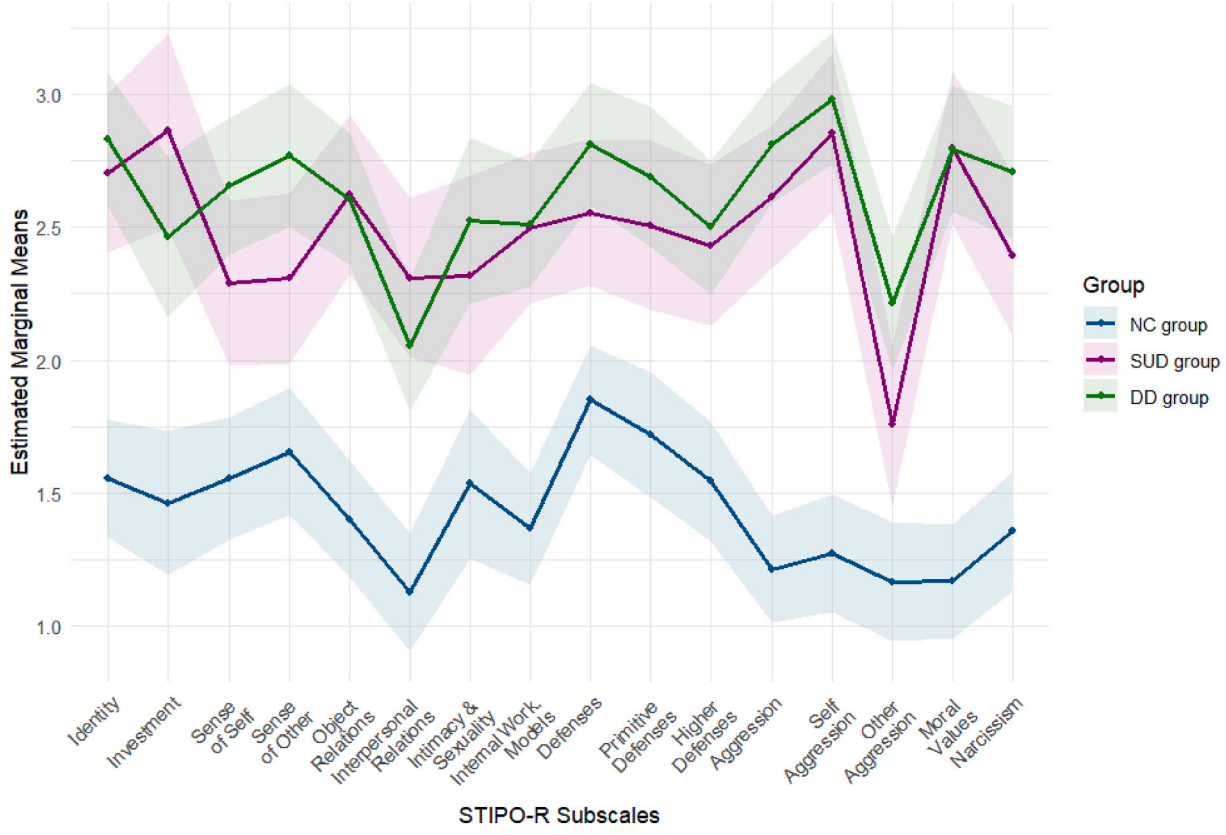

Fig. 1. STIPO-R's domains and subdomains personality profiles (Means and Confidence Intervals) for the dual-disorders group (DD), the nonclinical group (NC), and the substance use disorders group (SUDs). Results are controlled for gender and age differences.

affective states, such as social anxiety or fear of negative evaluation.

DD and SUD patients show higher levels of self and other-directed aggression than NCs, consistent with Kernberg's (1998) model linking temperamental aggression to BPO and impaired object relations. Clinically, substance use may be conceptualized as an indirect form of self-harm (Nock, 2010), given its harmful consequences, and is frequently associated with self-harm behaviors in both SUD and cluster B personality pathology (Moller et al., 2013; Stepp et al., 2005; Casillas and Clark, 2002).

Also in the domains of object relations and moral functioning, SUD and DD individuals present similar levels of impairment. This aligns with recent findings indicating deficits in relational functioning and self-structure among individuals with SUD (Amiri et al., 2025). Impairments in moral functioning may reflect impulsivity and substance-related judgment deficits common to both groups, suggesting reduced reliance on internal moral standards, potentially through different underlying mechanisms (Sher and Trull, 2002).

Finally, DD and SUD patients exhibit higher pathological narcissism

than NC individuals. For DD patients, this result may reflect the presence of NPD and ASPD in the sample (9.5% and 28.6%, respectively). Still, pathological narcissism extends beyond narcissistic personality disorder and includes broader features such as unstable self-esteem, interpersonal dysfunction, hostility, and primitive defenses (Clarkin et al., 2018), which are common in personality pathology more generally. In this sense, it is not surprising that individuals with personality pathology in general may present these features to a greater extent. Notably, SUD patients showed similar levels of narcissism, consistent with evidence that narcissistic traits—such as lack of empathy, perceived invulnerability, and unstable self-esteem—are prevalent in SUD populations and may contribute to both the development and maintenance of substance use (Salazar et al., 2021; Dékàny and Riegel, 2023).

As expected, individuals with DD and SUD present personality-related impairments that may interfere with effective treatment and need to be considered in addiction services (Preti et al., 2015). Even in the absence of a PD diagnosis, SUD patients showed higher levels of primitive personality organization than nonclinical participants, consistent with prior findings (Rentrop et al., 2014) and with Kernberg's view that substance use frequently occurs within BPO (Kernberg, 1995a, 1995b). These findings highlight the importance of thorough, structural diagnostic assessment of personality functioning among individuals accessing treatment for a SUD to identify potential barriers to effective SUD treatment (Sharp and Oldham, 2023) and to inform appropriate treatment planning. Both DD and SUD patients may require integrated interventions that address not only substance use but also core features of personality pathology, such as identity disturbances, maladaptive defenses, narcissism, and aggression. Importantly, this does not imply that all SUD patients require personality-focused interventions; rather, a structured assessment can guide treatment planning by distinguishing those who may benefit from substance-focused care alone from those needing more integrated approaches. An object relations framework may therefore provide a valuable lens for case formulation and intervention in both DD and SUD populations.

An important consideration when observing group differences in personality functioning concerns the role of age. When age was not included as a covariate in ANCOVA models (see Supplementary materials), several differences between the two clinical groups emerged. DD patients scored significantly higher than SUD patients in the Identity subdomains of Sense of self and Sense of others, in general defensive functioning, in Other-directed aggression, and in Narcissism. However, age showed a consistent negative association with several domains, including Interpersonal Relations, Total and Lower-level Defenses, Other-directed Aggression, and Moral Values, indicating lower levels of personality impairment with increasing age. These findings suggest that age-related variation in personality functioning may partially account for the differences observed between DD and SUD patients in unadjusted analyses. The STIPO-R domains capture structural aspects of personality organization that are known to evolve across the lifespan (Clarkin et al., 2013), with younger individuals typically showing higher levels of impairment. In this context, differences between clinical groups may be amplified or attenuated depending on their age composition. This is consistent with research highlighting the challenges of assessing personality pathology in later life without age-adjusted tools (Agronin and Maletta, 2000). Given that age differed significantly across the three groups, these findings highlight the importance of accounting for age when interpreting personality functioning. At the same time, the emergence of group differences in the unadjusted models suggests that the STIPO-R may retain sensitivity in distinguishing between DD and SUD patients when age-related variance is appropriately modeled or when samples are more closely matched for age, as observed in previous research (Di Pierro et al., 2014; 2020) where the STIPO was employed to determine group differences between SUD and psychiatric patients. Future studies should employ age-matched and longitudinal designs to better disentangle developmental influences from disorder-specific differences in personality organization. The results of our study require further investigation to overcome some limitations. First, DD individuals were recruited from a residential treatment program, while SUD individuals were recruited from a non-residential mental health service: in the firs case, patients live in the community 24/7, surrounded by other patients and mental health professionals, and their participation in the outside society is very limited, while SUD patients fully live their external life. Second, diagnostic assessment was conducted using the SCID-II, which is based on DSM-IV criteria and therefore includes diagnoses that were not retained in DSM-5, such as Depressive Personality Disorder. Hence, caution is warranted when interpreting findings in relation to current DSM-5 nosology. Third, psychiatric conditions other than psychotic disorders or manic episodes were not excluded. While such comorbid conditions may contribute to overall clinical severity, the present study focused on personality functioning, and the results are interpreted as reflecting differences in personality organization within comorbid clinical profiles, rather than being primarily driven by specific additional diagnoses. Finally, although all patients were abstinent at the time of assessment, the study did not collect systematic information on duration of abstinence or the presence of withdrawal symptoms. Such conditions are associated with affective dysregulation, impulsivity, cognitive fluctuations, and interpersonal sensitivity, which may overlap with or amplify impairments in personality functioning (Pergolizzi et al., 2020; Wang et al., 2023). Future studies should include a detailed assessment to disentangle trait-like personality impairment from state-dependent substance-related influences.

5. Conclusion

Our study underscores the utility of the STIPO-R in delineating the nuances of personality organization across individuals with co-occurring substance abuse and personality disorders (DD), substance abuse disorder without personality disorder (SUD), and nonclinical individuals (NC). The STIPO-R could detect varying levels of personality pathology, even in individuals without a formal PD diagnosis, such as those with SUDs. Indeed, individuals with SUDs exhibited higher levels of personality pathology compared to the NC group, suggesting that they may fall within the spectrum of personality pathology when using a dimensional conceptual framework. While the STIPO-R is not the focus of psychometric validation in the present study, the observed group differences support its clinical sensitivity in SUD populations. Our results emphasize the importance of considering personality factors in the assessment and treatment of both individuals with substance use disorders and a dual disorder involving PDs.

CRediT authorship contribution statement

Erika Fanti: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation. **Caterina Felici:** Writing – review & editing, Writing – original draft. **Rossella Di Pierro:** Writing – review & editing, Supervision, Project administration, Data curation, Conceptualization. **Marco Di Sarno:** Writing – review & editing, Supervision, Methodology. **Fabio Madeddu:** Supervision, Project administration, Conceptualization. **Emanuele Preti:** Writing – review & editing, Supervision, Project administration, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jpsychires.2026.04.013.

References

Agronin, M.E., Maletta, G., 2000. Personality disorders in late life. Understanding and overcoming the gap in research. Am. J. Geriatr. Psychiatr. : official journal of the American Association for Geriatric Psychiatry 8 (1), 4–18. https://doi.org/10.1097/00019442-200002000-00002.

Amiri, T., Summers, F., Ghafoori, S., Dehghani, M., 2025. Exploring object relations and self-structure in men with substance use disorders: a qualitative study. Psychoanal. Psychol. 42 (1), 46–54. https://doi.org/10.1037/pap0000529.

Biberdzic, M., Sowislo, J., Cain, N., Meehan, K., Preti, E., Pierro, R., Caligor, E., Clarkin, J., 2024. Establishing levels of personality functioning using the Structured Interview of Personality Organization (STIPO-R): a latent profile analysis. J. Pers. Assess. 1–13. https://doi.org/10.1080/00223891.2024.2330502.

Caligor, E., Preti, E., Stern, B.L., Sowislo, J.F., Clarkin, J.F., 2023. Object relations theory model of personality disorders. Am. J. Psychother. 76 (1), 26–30. https://doi.org/10.1176/appi.psychotherapy.20220027.

Casillas, A., Clark, L.A., 2002. Dependency, impulsivity and Self-Harm: traits hypothesized to underlie the Association between cluster B personality and substance use disorders. J. Pers. Disord. 16 (5), 424–436. https://doi.org/10.1521/pedi.16.5.424.22124.

Clarkin, J.F., Spielman, L.A., Klausner, E., 2013. Conceptual overview of personality disorders in the elderly. Personality disorders in older adults 3–15.

Clarkin, J.F., Cain, N.M., Lenzenweger, M.F., 2018. Advances in transference-focused psychotherapy derived from the study of borderline personality disorder: clinical insights with a focus on mechanism. Curr. Opin. Psychol. 21, 80–85. https://doi.org/10.1016/j.copsyc.2017.09.008.

Clarkin, J.F., Caligor, E., Stern, B., Kernberg, O.F., 2019. Manual for the Structured Interview of Personality organization-revised (STIPO-R). Unpublished Manuscript. Weill Cornell Medical College. https://www.borderlinedisorders.com/assets/STIPORmanual.July2021.pdf.

Costa Jr., P.T., McCrae, R.R., 2008. The revised NEO personality inventory (NEO-PI-R). In: Boyle, G.J., Matthews, G., Saklofske, D.H. (Eds.), The SAGE Handbook of Personality Theory and Assessment, Vol. 2. Personality Measurement and Testing. Sage Publications, Inc, pp. 179–198. https://doi.org/10.4135/9781849200479.n9.

Dékàny, L., Riegel, K.D., 2023. Narcissistic phenomena in patients with substance use disorder: narrative review. Adiktologie J. 3/2023. https://doi.org/10.35198/01-2023-003-0007.

Di Pierro, R., Gargiulo, I., Poggi, A., Madeddu, F., Preti, E., 2020. The level of personality functioning Scale applied to clinical material from the Structured Interview of Personality Organization (STIPO): utility in detecting personality pathology. J. Pers. Disord. 34 (Suppl. C), 62–76. https://doi.org/10.1521/pedi_2020_34_472.

Di Pierro, R., Preti, E., Vurro, N., Madeddu, F., 2014. Dimensions of personality structure among patients with substance use disorders and co-occurring personality disorders: a comparison with psychiatric outpatients and healthy controls. Compr. Psychiatry 55 (6), 1398–1404. https://doi.org/10.1016/j.comppsych.2014.04.005.

Fenton, M.C., Keyes, K., Geier, T., Greenstein, E., Skodol, A., Krueger, B., Grant, B.F., Hasin, D.S., 2012. Psychiatric comorbidity and the persistence of drug use disorders in the United States. Addiction 107 (3), 599–609. https://doi.org/10.1111/j.1360-0443.2011.03638.x.

First, M.B., Gibbon, M., Spitzer, R.L., Williams, J.B., Benjamin, L.S., 1997. Structured Clinical Interview for DSM-IV® Axis II Personality Disorders (SCID-II). American Psychiatric Publishing.

Fodstad, E.C., Ushakova, A., Pallesen, S., Hagen, E., Erga, A.H., Erevik, E.K., 2022. Personality and substance use disorder: characteristics as measured by NEO-personality inventory-revised. Front. Psychol. 13, 982763. https://doi.org/10.3389/fpsyg.2022.982763.

Hörz-Sagstetter, S., Caligor, E., Preti, E., Stern, B.L., De Panfilis, C., Clarkin, J.F., 2018. Clinician-Guided assessment of personality using the structural interview and the Structured Interview of Personality Organization (STIPO). J. Pers. Assess. 100 (1), 30–42. https://doi.org/10.1080/00223891.2017.1298115.

Jeronimus, B.F., Kotov, R., Riese, H., Ormel, J., 2016. Neuroticism's prospective association with mental disorders halves after adjustment for baseline symptoms and psychiatric history, but the adjusted association hardly decays with time: a meta-analysis on 59 longitudinal/prospective studies with 443,313 participants. Psychol. Med. 46 (14), 2883–2906. https://doi.org/10.1017/S0033291716001653.

Juchem, C.M., Bendau, A., Bandurski, L.C., Reich, N.J., Baumgardt, S., Asselmann, E., 2024. Personality changes related to presence and treatment of substance use (disorders): a systematic review. Psychol. Med. 1–25. https://doi.org/10.1017/S003329172400093X.

Kernberg, O.F., 1984. Severe Personality Disorders: Psychotherapeutic Strategies. Yale University Press.

Kernberg, O.F., 1995a. Borderline Conditions and Pathological Narcissism. Jason Aronson, Inc.

Kernberg, O.F., 1995b. Object Relations Theory and Clinical Psychoanalysis, Revised ed. Jason Aronson, Inc.

Kernberg, O.F., 1998. Aggression, hatred, and social violence. Can. J. Psychoanal. 6 (2), 191–206.

Kernberg, O.F., Caligor, E., 2005. A psychoanalytic theory of personality disorders. In: Lenzenweger, M.F., Clarkin, J.F. (Eds.), Major Theories of Personality Disorder. Guilford Press, New York, pp. 114–156.

Köck, P., Walter, M., 2018. Personality disorder and substance use disorder—An update. Ment. Health Prev. 12, 82–89. https://doi.org/10.1016/j.mhp.2018.10.003.

Kotov, R., Gamez, W., Schmidt, F., Watson, D., 2010. Linking 'big' personality traits to anxiety, depressive, and substance use disorders: a meta-analysis. Psychol. Bull. 136 (5), 768–821. https://doi.org/10.1037/a0020327.

Langås, A.-M., Malt, U.F., Opjordsmoen, S., 2012. In-depth study of personality disorders in first-admission patients with substance use disorders. BMC Psychiatry 12, 180. https://doi.org/10.1186/1471-244X-12-180.

Lee, H.-J., Bagge, C.L., Schumacher, J.A., Coffey, S.F., 2010. Does comorbid substance use disorder exacerbate borderline personality features? A comparison of borderline personality disorder individuals with vs. without current substance dependence. Pers. Disord. Theory Res. Treat. 1 (4), 239–249. https://doi.org/10.1037/a0017647.

Lenth, R., 2023. Emmeans: estimated marginal means, aka least-squares means, version 1.9.0. https://CRAN.R-project.org/package=emmeans.

Marquez-Arrico, J.E., López-Vera, S., Prat, G., Adan, A., 2016. Temperament and character dimensions in male patients with substance use disorders: differences relating to psychiatric comorbidity. Psychiatry Res. 237, 1–8. https://doi.org/10.1016/j.psychres.2016.01.061.

Marquez-Arrico, J.E., Río-Martínez, L., Navarro, J.F., Prat, G., Adan, A., 2019. Personality profile and clinical correlates of patients with substance use disorder with and without comorbid depression under treatment. Front. Psychiatr. 9, 764. https://doi.org/10.3389/fpsyt.2018.00764.

McGlashan, T.H., Grilo, C.M., Skodol, A.E., Gunderson, J.G., Shea, M.T., Morey, L.C., Zanarini, M.C., Stout, R.L., 2000. The collaborative longitudinal personality disorders Study: baseline axis I/II and II/II diagnostic co-occurrence. Acta Psychiatr. Scand. 102 (4), 256–264. https://doi.org/10.1034/j.1600-0447.2000.102004256.x.

McKernan, L.C., Nash, M.R., Gottdiener, W.H., Anderson, S.E., Lambert, W.E., Carr, E.R., 2015. Further evidence of Self-Medication: Personality factors influencing drug choice in substance use disorders. Psychodyn. Psychiatry 43 (2), 243–275. https://doi.org/10.1521/pdps.2015.43.2.243.

Moller, C.I., Tait, R.J., Byrne, D.G., 2013. Deliberate self-harm, substance use, and negative affect in nonclinical samples: a systematic review. Subst. Abuse 34 (2), 188–207. https://doi.org/10.1080/08897077.2012.693462.

Morey, L.C., Berghuis, H., Bender, D.S., Verheul, R., Krueger, R.F., Skodol, A.E., 2011. Toward a model for assessing level of personality functioning in DSM–5, part II: empirical articulation of a core dimension of personality pathology. J. Pers. Assess. 93 (4), 347–353. https://doi.org/10.1080/00223891.2011.577853.

Nock, M.K., 2010. Self-injury. Annu. Rev. Clin. Psychol. 6, 339–363. https://doi.org/10.1146/annurev.clinpsy.121208.131258.

Parmar, A., Kaloiya, G., 2018. Comorbidity of personality disorder among substance use disorder patients: a narrative review. Indian J. Psychol. Med. 40 (6), 517–527. https://doi.org/10.4103/IJPSYM.IJPSYM_164_18.

Pergolizzi, J.V., Raffa, R.B., Rosenblatt, M.H., 2020. Opioid withdrawal symptoms, a consequence of chronic opioid use and opioid use disorder: current understanding and approaches to management. J. Clin. Pharm. Therapeut. 45 (5), 892–903. https://doi.org/10.1111/jcpt.13114.

Preti, E., Di Sarno, M., Fanti, E., Felici, C., Madeddu, F., Di Pierro, R., 2026. Rolling in the deep of personality: psychometric properties of the structured interview of personality Organization - revised (STIPO-R) in Italy. J. Pers. Assess. 1–13. https://doi.org/10.1080/00223891.2025.2606011. Advance online publication.

Preti, E., Rottoli, C., Dainese, S., Pierro, R., Rancati, F., Madeddu, F., 2015. Personality structure features associated with early dropout in patients with substance-related disorders and comorbid personality disorders. Int. J. Ment. Health Addict. 13, 1–12. https://doi.org/10.1007/s11469-015-9540-7.

R Core Team, 2020. R: a Language and Environment for Statistical Computing. R Foundation for Statistical Computing [software]. https://www.R-project.org/.

Rentrop, M., Zilker, T., Lederle, A., Birkhofer, A., Hörz, S., 2014. Psychiatric comorbidity and personality structure in patients with polyvalent addiction. Psychopathology 47 (2), 133–140. https://doi.org/10.1159/000351784.

Richetin, J., Preti, E., Costantini, G., De Panfilis, C., 2017. The centrality of affective instability and identity in Borderline Personality Disorder: evidence from network analysis. PLoS One 12 (10), e0186695. https://doi.org/10.1371/journal.pone.0186695.

Rounsaville, B.J., Kranzler, H.R., Ball, S., Tennen, H., Poling, J., Triffleman, E., 1998. Personality disorders in substance abusers: relation to substance use. J. Nerv. Ment. Dis. 186 (2), 87.

Ruiz, M.A., Pincus, A.L., Schinka, J.A., 2008. Externalizing pathology and the five-factor model: a meta-analysis of personality traits associated with antisocial personality disorder, substance use disorder, and their Co-Occurrence. J. Pers. Disord. 22 (4), 365–388. https://doi.org/10.1521/pedi.2008.22.4.365.

Salazar, J., Page, B., Ripoll, C., 2021. Features, State and context of narcissism in drug misuse. Subst. Use Misuse 56 (1), 11–24. https://doi.org/10.1080/10826084.2020.1833923.

Sharp, C., Oldham, J., 2023. Nature and assessment of personality pathology and diagnosis. Am. J. Psychother. 76 (1), 3–8. https://doi.org/10.1176/appi.psychotherapy.20220016.

Sher, K.J., Trull, T.J., 2002. Substance use disorder and personality disorder. Curr. Psychiatry Rep. 4 (1), 25–29. https://doi.org/10.1007/s11920-002-0008-7.

Schuckit, M.A., Smith, T.L., Danko, G., Bucholz, K.K., Hesselbrock, V., Hesselbrock, M., et al., 2023. Do personality characteristics predict future alcohol problems after considering current demography, substance use, and alcohol response? Alcohol Clin. Exp. Res. 47 (6), 1179–1190. https://doi.org/10.1111/acer.15085.

Steel, Z., Marnane, C., Iranpour, C., Chey, T., Jackson, J.W., Patel, V., Silove, D., 2014. The global prevalence of common mental disorders: a systematic review and meta-analysis 1980–2013. Int. J. Epidemiol. 43 (2), 476–493. https://doi.org/10.1093/ije/dyu038.

Stepp, S.D., Trull, T.J., Sher, K.J., 2005. Borderline personality features predict alcohol use problems. J. Pers. Disord. 19 (6), 711–722. https://doi.org/10.1521/pedi.2005.19.6.711.

Stern, B.L., Caligor, E., Clarkin, J.F., Critchfield, K.L., Horz, S., MacCornack, V., Lenzenweger, M.F., Kernberg, O.F., 2010. Structured Interview of Personality

Organization (STIPO): preliminary psychometrics in a clinical sample. J. Pers. Assess. 92 (1), 35–44. https://doi.org/10.1080/00223890903379308.
Szerman, N., Torrens, M., Maldonado, R., Balhara, Y.P.S., Salom, C., Maremmani, I., Sher, L., Didia-Attas, J., Chen, J., Baler, R., World Association on Dual Disorders (WADD), 2022. Addictive and other mental disorders: a call for a standardized definition of dual disorders. Transl. Psychiatry 12 (1), 446. https://doi.org/10.1038/s41398-022-02212-5.
Trull, T.J., Freeman, L.K., Vebares, T.J., Choate, A.M., Helle, A.C., Wycoff, A.M., 2018. Borderline personality disorder and substance use disorders: an updated review. Borderline Personal. Disord. Emot. Dysregul. 5, 1–12. https://doi.org/10.1186/s40479-018-0093-9.
Verheul, R., van den Brink, W., 2005. Causal pathways between substance use disorders and personality pathology. Aust. Psychol. 40 (2), 127–136. https://doi.org/10.1080/00050060500094613.
Wang, M., Chen, Y., Li, H., Zhang, X., Xu, Y., Ding, Z.-H., Ma, Z., Sun, Y., 2023. Association between psychiatric symptoms and craving in drug withdrawal. Int. J. Ment. Health Addiction 21 (5), 3174–3184. https://doi.org/10.1007/s11469-022-00783-4.
Wickham, H., 2016. ggplot2: Elegant Graphics for Data Analysis, second ed. Springer. https://doi.org/10.1007/978-3-319-24277-4.