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Substance Abuse: Research and Treatment

Personality Disorders in Addiction Outpatients: Prevalence and Effects on Psychosocial Functioning

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ABSTRACT

AIM: To evaluate the prevalence of personality disorders (PDs) in the outpatients attending an addiction service, with particular attention to the effects of PDs on social and occupational functioning and on the intensity of treatment required.

DESIGN: A cross-sectional epidemiological study with the assessment of 320 outpatients, through SCID-II (Structured Clinical Interview for DSM-IV Axis II PDs), SOGS (South Oaks Gambling Screen), and questionnaire extracted from EuropASI.

RESULTS: The percentage prevalence of PDs was 62.2% (confidence interval at 95% (95% CI): 57–68). PDs were positively associated with placement in an addiction treatment community (odds ratio (OR) = 2.98, CI = 1.77–5.03), having received lifetime treatment at the mental health center (MHC) (OR = 3.67, CI = 1.67–8.07) or having attempted suicide (OR = 2.30, CI = 1.05–5.02). Furthermore, PDs were related to a reduced probability of keeping a job (OR = 0.54, CI = 0.31–0.95) or starting a family (OR = 0.51, CI = 0.30–0.87).

CONCLUSION: Axis II comorbidity occurs in 62% of addiction outpatients and has substantial effects on social and occupational functioning as well as on treatment programs.

KEYWORDS: addiction, personality disorders, prevalence, dual diagnosis, social functioning, outpatients

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Introduction

In the planning phase of the treatment of a patient with substance use disorders (SUDs), it is of fundamental importance to make an appropriate diagnosis of personality disorders (PDs).[1–3] Failure to diagnose such disorders can result in the exclusion of psychotherapeutic,[4–6] pharmacological, and social interventions, which could otherwise be essential for the recovery of the patient.[7–13]

There have been many international studies in the quest to understand the relationship between personality and substance addiction, but if we eliminate those studies that did not investigate the full range of PDs, that did not use structured interviews for diagnosis, or that had limited study samples, the amount of data available is considerably reduced. Furthermore, addiction treatment programs are now organized in outpatient settings in an attempt to reduce hospital/therapeutic community residency. For this reason, it is essential to obtain credible data regarding outpatient services.

In 1995, a systematic review of literature made by Verheul et al.[14] estimated a prevalence of PDs ranging from 44 to 79%. However, only 10 studies[15–24] investigated the full range of PDs using structured or semi-structured interviews and only 2 of those were carried out on outpatients. Kleinman et al.[19] evaluated a sample of 76 cocaine addiction patients revealing

a PD prevalence of 58%, and Brooner et al.[16] examined 203 outpatients in treatment for opiate abuse, 37% of whom were diagnosed with an Axis II disorder. In the following years, important epidemiological studies were carried out with more adequate samples and standardized diagnostic methods. In a study of a sample of 366 alcoholics (in- and outpatients) by Morgenstern et al.[25] the prevalence of PDs was 57.9%. APD was the most frequent: 22.7% with gender differences (25.7% male, 9.1% female). Women had the highest rate of prevalence for borderline PD (BPD) (36 vs. 19%) and self-defeating disorders (22 vs. 11%). There were high rates of comorbidity among PDs not confined within a single cluster. Brooner et al.[26] examined 716 outpatients undergoing methadone substitution treatment. The prevalence of PDs was 35%. In Rounsaville et al.'s study,[27] PDs were diagnosed in a mixed (clinic and hospital) sample of 370 patients. In all, 57% of the patients had at least one PD, with particular prevalence in cluster B. It was observed that the inclusion of substance abuse symptoms produced a significant increase in the number of cases diagnosed, especially APD and BPD. Kokkevi et al.[28] found a prevalence of PDs in 173 addicts (in- and outpatients) at 59.5%. Driessen et al.[29] examined a sample of 250 alcoholics in hospital treatment revealing a 16% PD prevalence (another 17% had a PD not otherwise specified (NOS) diagnosis for a total prevalence of 33.6%). Verheul et al.[30] established a PD prevalence of 57% in a sample of 370 patients (in- and outpatients), with a high prevalence of APD, BPD, and avoidant personality. It was also shown that symptom profiles of PDs were not associated with anxiety/mood disorders.

Following the studies by Kleinman et al.[19] and Brooner et al.[16,26], two studies were conducted on addiction outpatients. Bowden-Jones et al.[31] worked on a multi-centric study carried out in four centers for addicts and three for alcoholics. Out of a sample of 280 patients, 37% of the addicts and 53% of the alcoholics had a PD (assessed by PAS-Q,[32] a screening test for PDs). Zikos et al.[33] conducted a study on 138 alcoholics seeking outpatient treatment. The prevalence of PDs was 59% (assessed by SCID-II (Structured Clinical Interview for DSM-IV Axis II PDs)), of which 32% showed more severe psychological/social problems and a greater likelihood of treatment dropout and relapse.

Overall, because the prevalence of PDs in addicts is about four times higher than in the general population,[34–36] a more accurate consideration of the complex relationships between PDs and SUD is needed. The data suggest that personality pathology is involved in the etiology and course of SUD.[34]

Aims of the study. The primary aim of this study is to evaluate the prevalence of PDs in patients attending an Italian outpatients' service with substance abuse/addiction disorders.

The secondary aim is to evaluate the patients' social-demographic characteristics (age, gender, family status, education, employment), their clinical-therapeutic characteristics (age at start of substance use, duration of the SUD, physical comorbidity, time in prison, placement in therapeutic community), and the degree of impairment of social and occupational functioning because of PDs.

Materials and Methods

Setting and design. Data were collected during 2012 at the Addictions Service of Faenza, AUSL Ravenna. It is an outpatient service with a strong emphasis on the management of alcohol and opiate dependency.

The study is cross-sectional and epidemiological, undertaken in three phases.

1 Patients were recruited. The patients were contacted by a service professional and informed of the study's characteristics. For those who elected to participate after reading the information module and signing an informed consent form, an appointment was made with an interviewer. This phase was managed by a key worker chosen from the clinical team, comprising psychiatric nurses, social workers, and educators.
2 Patient assessment by consultant psychiatrists or psychologists.
3 Collection and analysis of data using SPSS (Statistical Package for Social Science) version 17.

This study was approved by CEAVR (Ethics Committee of the Area Vasta Romagna) and IRST (Romagna Scientific Institute for Tumour Therapy and Study).

Sample. The recruited patients were all effectively in treatment at the service during the study period. Out of 436 patients who were asked to participate, 320 completed the study.

The following criteria were considered for inclusion: age between 15 and 65, good comprehension of Italian, lifetime substance addiction, or abuse according to DSM-IV-R criteria, at least one month's effective treatment at the service in Faenza in 2012, and residency in the service catchment area. The criteria for exclusion were as follows: age below 15 or above 65, foreigners with inadequate comprehension of Italian (unable to undergo a linguistically complex test such as SCID-II[37]), severely compromised cognition, invalidating physical disease sufficient to compromise the quality of the interview, temporary incarceration or placement in a community outside the catchment area, presence of a psychotic disorder in active phase, and abandonment of the treatment program or discharge during the study period.

Considering these criteria, 84 patients were excluded (34 discharged/abandoned treatment, 11 aged over 65, 8 placed in communities outside our area, 3 placed in prison, 7 had cognitive deficiency, 9 had active phase psychoses, 8 had language difficulties, and 4 had severe physical pathologies). Of the remaining 352 patients, 23 refused to participate and 9 died.

According to the Italian statistical authority ISTAT, the general population on January 1, 2012 of the Faenza district

pertaining to our service was 87,067, of which 55,011 inhabitants were in the target age range of 15–65.

Assessments. The social-demographic and clinical questionnaire were extracted from EuropASI. EuropASI is a European adaptation of the Addiction Severity Index.[38–40] It is a multidimensional semi-structured instrument designed to assess difficulties in substance abusers in seven areas: medical, employment, alcohol use, drug use, legal, family/social, and psychological. With the use of this interview, relevant data have been collected regarding the social-demographic characteristics of the individual (sex, age, education, employment, family composition, and living conditions), the substance dependence characteristics (substances used, method of use, clinical course, pharmacological and psychotherapeutic treatment applied, necessity of hospital detoxification, placement in a therapeutic community), the presence of physical pathology, the legal situation, and the patient's psychological condition. It has been a useful instrument for investigating psychological and occupational impairment.

SOGS (South Oaks Gambling Screen)[41]: a questionnaire designed to assess problems related to gambling, using 20 items based on DSM-III criteria[42] for the assessment of pathological gambling (PG).

SCID-II[37]: a semi-structured interview for the diagnostic assessment of PDs according to DSM-IV. In those cases where the disorder in question causes a significant compromise of psychic functioning but does satisfy the criteria for a specific PD, a diagnosis of NOS PD is formulated.

The interviews were conducted by one of the clinicians from the service (two consultant psychiatrists and two psychologists) with extensive experience in assessing and treating addiction disorders. The clinicians received intensive training on the administration of this instrument. All participants were assessed a minimum of 30 days after entry into treatment. Patients were not interviewed while intoxicated or in acute withdrawal. The interviewers were also instructed not to include behavior occurring only in a state of intoxication or withdrawal. Each participant was interviewed for assessment three times by a consultant psychiatrist to determine the presence of Axis I pathology. Axis I diagnoses were obtained clinically, according to DSM-IV-TR criteria.

Data analysis. First, the association between variables of interest and outcome was verified by means of a chi-squared test. Second, all statistically significant differences were re-tested using univariate logistic regression analysis which enabled an estimation of odds ratios (ORs) and confidence interval at 95% (95% CI). Third, possible confounding factors were included in a multivariate logistic regression model. The data were processed with the SPSS version 17 program.

Results

Social-demographic characteristics. The sample comprised 320 patients, of whom 74% were male. The mean age was 40.9 (SD ± 10.8). A total of 59% had standard education, 19% had a professional diploma (at least three years), and 21% had received higher education (upper school or university). In addition, 64% were employed and 27% drew disability benefits.

In all, 27% lived with their original families, 43% with a partner and/or children, 20% alone, and 10% with friends or others. Almost half of the sample was single, 33% married or were in partnership, and 20% separated (Table 1).

Substance dependence characteristics. In 61% of cases, the primary addiction was heroin, with cocaine 4%, alcohol 28%, and PG 7% (Fig. 1). Among the opiate addicts, 30% ($N = 59$) had a second pathological addiction: 66% cocaine, 29% alcohol, and 5% gambling. Regarding PG, SOGS revealed that although only 22 patients had a primary diagnosis of PG, 32 patients (10%) displayed current gambling behavior and almost the same number had done so during their lifetime.

Table 1. Number (*n*) and proportion (%) of subjects according to social-demographic characteristics.

SOCIAL-DEMOGRAPHIC VARIABLES	N	%
Men	236	73.8
Women	84	26.3
Age group		
15–30 years	59	18.4
31–50 years	199	62.2
51–65 years	62	19.4
Education		
illiterate	2	0.6
primary	26	8.1
lower middle	162	50.6
professional diploma	62	19.4
upper school	55	17.2
university degree	13	4.1
Employment	204	63.8
regular	136	66.7
non-contractual	52	25.5
occasional	16	7.8
Pension		
disability benefits	86	26.9
early retirement	20	6.3
Habitation		
own property	149	46.6
rented property	142	44.4
homeless	5	1.6
therapeutic community	24	7.5
Living with		
original family	86	26.9
partner	60	18.8
own children	18	5.6
partner and children	59	18.4
alone	65	20.3
other	32	10.0
Social Status		
unmarried	141	44.1
cohabiting	48	15.0
married	59	18.4
separated/divorced	63	19.7
widowed	9	2.8

The average age for starting opiate use was 19 ± 4, for cocaine 22 ± 7, and for alcohol 28 ± 11 (Table 2). Considering the substance of primary use, 63% were in complete remission (greater than six months), 12% in partial remission (less than six months), and 25% continued use. These clinical assessments were confirmed by urine tests for opiates/cocaine and blood tests for alcohol.

The specific medicines used for the treatment of the primary addiction were methadone 32%, buprenorphine 13%, and gamma-hydroxybutyrate with or without disulfiram 14%. A total of 39% of patients were not being treated with specific medicines, particularly when the diagnosed primary addiction was cocaine or PG.

In all, 48% had been placed at least once in a therapeutic community. A total of 39% had been hospitalized for detoxification, 61% had been arrested, and 32% had been to prison. The presence of infective and liver diseases is an important clinical factor. Overall, 46% of the service patients had a family history of substance abuse or addiction (Table 3).

Psychiatric characteristics. In all, 20% of patients had contact with the mental health center (MHC) and 12% had an Axis I disorder, of which 17% had mood disorders, 4% anxiety disorders, and 5% psychotic disorders. Regarding behavioral problems, 34% reported having had difficulty controlling violent behavior. A total of 22% had attempted suicide at least once, and 22% reported a family history of psychiatric disorders.

The prevalence of PDs was 62.2% (95% CI: 57–68); 199 out of 320 addiction outpatients met criteria for at least one Axis II disorder, the most common PDs being borderline and antisocial. In all, 27.2% of the sample displayed several PDs in comorbidity. In the data analysis phase, we chose to consider the primary PD diagnosed. (On reaching the threshold score for SCID-II diagnosis, the PD with the highest number of items was considered primary.)

Grouping the PDs by cluster, we found that 8% had a cluster A disorder, 33% cluster B, 14% cluster C, and 7% appendix. The prevalence of each PD among all patients (considering the primary diagnosis) was 4.4% paranoid, 3.7% schizoid, 1.5% histrionic, 15.0% borderline, 13.8% antisocial, 2.5% narcissistic, 7.8% avoidant, 1.6% dependent, 4.7% obsessive-compulsive, 4.7% passive-aggressive, 0.7% depressive, and 1.8% NOS personality (Table 4).

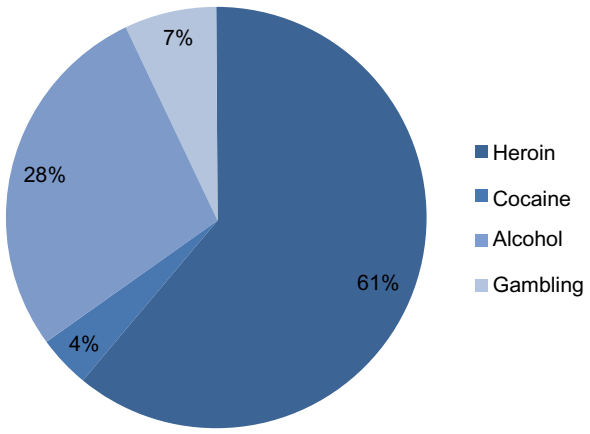

Figure 1. Primary substance dependence diagnosis. In 61% of cases, the primary addiction was heroin, with cocaine 4%, alcohol 28%, and PG 7%.

Table 2. Age at the first substance use and years of treatment.

	M	MIN	MAX	DS
Average age at first opiate use	19	12	39	±4.3
Average age at first alcohol use	28	12	61	±11.1
Average age at first cocaine use	22	12	53	±7.2
Number of years in treatment	5.6	1	24	±5.0

Furthermore, a different distribution of PDs was found according to sex ($P < 0.001$, chi-square test). In all, 91% of patients with APD were male whereas 52% of those with BPD were female (a high number considering the lower number of women in treatment).

Clinical, social, and occupational characteristics associated with PDs. With regard to employment, having a job is associated with PD diagnosis (OR = 0.5, $P = 0.03$). Among unemployed patients ($N = 116$), fully 74% had a PD. Among those with a PD, 57% had a job whereas among those without a PD, 75% worked (Table 5).

As for family relationships, it was observed that having one's own family was associated with PD (OR = 0.5, $P = 0.01$). Among those living with their original family, alone, or in a structured environment, 65% ($N = 130$) had a PD whereas, among those with their own family, only 35% ($n = 69$) were affected.

Among patients who had been treated at least once in a therapeutic community, 75% ($n = 116$) had a PD. Among patients with a PD, 58% ($N = 116$) had been treated in a community whereas, among those without, only 31% ($N = 38$) had lived in a community. Those with a PD had a threefold risk of needing placement in an addiction treatment community (OR = 2.98, $P = 0.00$).

Among patients who had lifetime contact with a MHC, 85% ($N = 57$) had a PD. Among pathological addiction patients with a PD, 29% ($N = 57$) had contact with an MHC, whereas among those without an Axis II disorder, only 8% ($N = 10$) had contact with an MHC. Having a PD increased the possibility of needing MHC assistance by a factor of 3.7 (OR = 3.67, $P = 0.00$).

Having a PD doubled the probability of having attempted suicide at least once in life. Among patients who had attempted suicide, 84% ($N = 58$) had a PD. Among those who had a PD, 29% ($N = 58$) had attempted suicide; among those without a PD, only 9% (OR = 2.3, $P = 0.04$) had done so. In particular, an important link between BPD and attempted suicide ($P = 0.00$, chi-square test) was observed. Among those who had attempted suicide, 26% had BPD, 58% another PD type, and 15% no PD.

Table 3. Number (*n*) and proportion (%) of subjects according to clinical-substance dependence characteristics.

CLINICAL-SUBSTANCE DEPENDENCE VARIABLES	N	%
Primary substance		
opiate	196	61.0
cocaine	13	4.0
alcohol	89	28.0
gambling	22	7.0
Comorbidity	84	26.2
wIth opiate addiction	59	
alcohol	17	5.3
cocaine	39	12.2
gambling	3	0.9
with alcohol addiction	8	
opiate	0	0.0
cocaine	6	1.9
gambling	2	0.6
with gambling addiction	17	
opiates	6	1.9
alcohol	6	1.9
cocaine	5	1.6
Gambling		
non-gambler	210	65.6
ex- gambler	28	8.8
pathological gambler	32	10.0
occasional gambler	50	15.6
Intravenous substance use	174	54.4
Smokers	218	68.1
Addiction status (primary substance)		
remission	202	63.0
partial remission	38	12.0
continued use	80	25.0
Pharmacological treatment (primary substance)		
methadone	102	32.0
buprenorphine	42	13.0
gamma-hydroxybutyrate	15	5.0
disulfiram	19	6.0
gamma-hydroxybutyrate and disulfiram	9	3.0
other	7	2.0
none	126	39.0
Psychotherapeutic treatment	61	19.0
Therapeutic community treatment history	154	48.0
Hospitalised for detoxification	125	39.0
Illnesses		
cardiac disease	24	7.5
hepatic disease	108	33.8
respiratory disease	22	6.9
infectious disease	91	28.4
neural disease	26	8.1
osteoarticular disease	41	12.8
other pathologies	33	10.3
Family addiction history	146	45.6
Arrest history	195	61.0
Prison	103	32.0

Discussion

The primary aim of this study is to determine the prevalence of PDs among SUD patients assisted by an outpatient service. Almost two out of three patients fulfill the criteria for at least one PD (62%) and 27% present comorbidity in several PDs. The most common Axis II disorders found were borderline personality (15%), antisocial personality (13.8%), avoidant personality (7.8%), passive-aggressive personality (4.7%), obsessive-compulsive personality (4.7%), and paranoid personality (4.4%).

Table 6 compares the results of this study with those present in literature published between 1992 and 2012 in samples greater than 100 and using standardized diagnostic instruments. Among studies conducted solely in outpatient settings, our prevalence data are higher than those of Brooner et al.[16,26] and Bowden-Jones et al.,[31] but in line with Zikos' research.[33] Our data are within the average if we consider the overall results of studies in both outpatient and hospital settings.

Table 4. Number (*n*) and proportion (%) of PDs among all patients canvassed (*N* = 320).

PERSONALITY DISORDERS	%	N
Personality Disorders of Cluster A	8.1	26
Paranoid	4.4	14
Schizoid	3.7	12
Schizotype	0	0
Personality Disorders of Cluster B	32.8	105
Histrionic	1.5	5
Borderline	15	48
Antisocial	13.8	44
Narcissistic	2.5	8
Personality Disorders of Cluster C	14.1	45
Avoidant	7.8	25
Dependent	1.6	5
Ossessive-Compulsive	4.7	15
Appendix	7.2	23
Passive-Aggressive	4.7	15
Depressive	0.7	2
NOS	1.8	6
Total	62.2	199

Table 5. Association between significant variables and PDs. Odds Ratio (OR) and 95% Confidence Interval (95%CI) per PDs according to the logistic regression model. § statistically significant.

VARIABLES	OR	CI	*P*
Male	1.34	0.72–2.51	0.35
Age	1.00	0.98–1.02	0.94
Employment	0.54	0.31–0.95	0.03 §
Living with his own family	0.51	0.30–0.87	0.01 §
Therapeutic community	2.98	1.77–5.03	<0.01 §
Contact with MHC	3.67	1.67–8.07	<0.01 §
Violent Behaviour	1.68	0.94–2.99	0.08
Suicidal Behaviour	2.30	1.05–5.02	0.04 §

Table 6. Principal studies in literature regarding the prevalence of PDs in substance addicted patients.

AUTHOR	NACE	DEJONG		BROONER	MORGEN-STERN	BROONER	ROUNSAVILLE	KOKKEVI	DRIESSEN	VERHEUL	BOWDEN-JONES		ZIKOS	THIS STUDY
Year	1991	1993		1993	1997	1997	1998	1998	1998	2000	2004		2010	2012
Substance	Alcohol-Drugs	Alcohol	Drugs	Drugs	Alcohol	Alcohol-Drugs	Alcohol-Drugs	Drugs	Alcohol	Alcohol-Drugs	Alcohol	Drugs	Alcohol	Alcohol-Drugs
Sample	100	178	86	203	366	716	370	173	250	370	64	216	138	320
Setting	In	In	In	Out	In – Out	Out	In – Out	In – Out	In	In – Out	Out	Out	Out	Out
Instrument	Scid	Sidp	Sidp	Scid II	Scid II	Scid II	Scid II	Scid II	Ipde	Scid II	Pas-Q	Pas-Q	Scid II	Scid II
Prevalence of PDs	57.0	78.0	91.0	37.0	57.9	34.8	57.0	59.5	33.6	57.0	53.2	37.0	59.0	62.2
Cluster A	7.0	–	–		21.3	–	18.6	15.0	5.2	18.6	6.5	3.7	–	8.1
Paranoid	7.0	14	26.7	3.9	20.7	3.2	13.2	13.9	1.2	10.8	4.8	2.7	–	4.4
Schizoid	–	3.9	7.0	–	1.1	0.3	3.8	–	4.3	3.8	3.2	0.9	–	3.7
Schizotype	–	16.9	40.7	–	0.8	0.3	4.6	4.0	0.8	4.6	–	–	–	0.0
Cluster B	30.0	–	–		37.7	–	45.7	48.6	7.6	45.7	24.2	30.1	32.0	32.8
Antisocial	3.0	5.1	47.7	23	22.7	25.1	27	33.5	4.4	27.0	11.3	10.2	5.0	13.8
Borderline	17.0	17.4	65.1	7.9	22.4	5.2	18.4	27.7	3.2	18.4	9.7	7.7	13.0	15.0
Narcissistic	4.0	6.7	12.8	0.5	6.6	0.8	9.5	11.6	0.4	9.5	–	–	7.0	2.5
Histrionic	6.0	33.7	64.0	3.4	4.4	1.4	11.9	11.0	0.8	11.9	3.2	3.6	–	1.5
Cluster C	7.0	–	–		33.6	–	24.3	28.9	7.6	24.3	35.5	13.0	–	14.1
Oss.-Comp.	2.0	19.1	25.6	1.0	10.7	0.7	6.2	6.4	0.8	6.2	3.2	0.9	7.0	4.7
Dependent	4.0	29.2	34.9	2.5	5.2	1.7	8.1	8.7	2.4	8.1	16.1	8.1	–	1.6
Avoidant	2.0	19.1	26.7	8.4	18.0	5.2	18.4	16.8	5.2	18.4	27.4	5.0	6.0	7.8
Nos	(7.0)	–	–	(1.0)	(13.1)	–	–	(6.4)	16.8	–	(3.2)	(15.8)	12.0	1.8
Depressive		–	–		–	–	–	–	–	–	–	–	–	0.7
Passive-Aggressive	5.0	14	48.8	3.4	10.7	4.1	11.6	12.1	–	11.6	–	–	–	4.7

The rates of prevalence in the diverse studies vary from 33 to 91%. According to Verheul et al.,[43] sampling factors (setting, gender, age group), diagnostic criteria (time-frame, exclusion of substance-related pathology), and assessment procedures (method, time of measurement) are the variables most responsible for the huge varieties in prevalence rates. These factors partly explain the ample range of variability in the prevalence of PDs in addicts, but they testify to the need for further studies to achieve reliable and comparable prevalence data, which could explain the relationship between these two pathological dimensions more clearly.

Such a high rate of PD prevalence raises the question of the consequences in clinical-therapeutic and social terms.

From the clinical-therapeutic point of view, it has emerged that having a PD increases threefold the probability of needing treatment in a therapeutic community and almost four times the probability of requiring access to MHC. This not only underscores the greater need for resources on behalf of these patients but also brings into discussion the motivations behind the treatment of patients in therapeutic communities. It must be pointed out that even though all the patients have a SUD, it is the ones with an Axis II psychic disorder, for whom simple outpatient treatment would not be sufficient, who mostly require treatment in a therapeutic community. Finally, it has been demonstrated how much a PD increases the risk of suicide (OR = 2.3). A total of 22% of patients have attempted to end their lives, and of these, 84% had a PD.

The social functioning of these people is greatly compromised. Among the service users without a job, 74% have a PD, and even considering all the confounding variables, employment remains an associated factor (OR = 0.5). A total of 27% of the patients receive disability benefits, and among these, 72% have a PD ($P = 0.03$, chi-square test). Among those who live alone, with their original family or in assisted accommodation, 69% have a PD ($P < 0.001$, chi-square test). We can conclude that the ability to work and start a family is influenced by having a PD.

Among the variables not influenced by the presence of PDs are the types of substances used in prevalence, as well as treatment with specific medicines, which remain directly linked to the addiction and are not affected by character. Significant differences were not observed with regard to having legal

proceedings or having been to prison among the populations with and without PD. This signifies that the incarceration of addicts is a consequence of the addiction itself (possession of illegal substances, deviant behavior such as theft and drug-pushing driven by craving). Among those who had been to prison, 65% did not have an antisocial personality. Access to services helps in the containment of the illness, stems the need to resort to illegal behavior, and reduces the risk of going to prison. The patients currently in treatment with alternative measures to detention are in the majority of cases people unknown to the service before incarceration (including a considerable number of foreigners).

The treatment of addiction has been greatly influenced by the push to control the social phenomenon of addiction and by the fear of emergent pathologies such as HIV. Substance addiction has long been interpreted as a moral failing, and as such alternately ignored or repressed. Since the 1980s however, there have been articles available in literature that inquire into the significance of addiction and that define it as a disease. Addiction has been alternately proposed as a PD[44] or as an independent pathology classified among the 15 possible mental disorders.[45,46] In the last decade, there has been increased interest in the reasons for these clinical symptoms and the psychopathological implications. Attention is slowly moving from the substance and the dysfunctional behavior to the person and his need for care. In this article, it has been shown that 62% of the patients of a public service for pathological addiction are affected by a PD. This Italian datum integrates the data present in international literature and queries the adequacy of our services in facing a clinical situation of this type. It is important that services be prepared to make timely and accurate diagnoses of PDs and are able to implement the treatment procedures that are deemed in international literature to be most effective. Treatment also directed toward the dimension of character could help improve the quality of patients' lives and their psychosocial functioning, as well as prevent the chronic nature of the disease.

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Author Contributions

PC, DO, and ARA conceived and designed the experiments. PC, ARA, and GR analyzed the data. PC, LB, VB, MB, and ES wrote the first draft of the manuscript. BF, FR, CP, and PP contributed to the writing of the manuscript. PC, DO, BF, CP, ES, MB, VB, LB, PP, GR, FR, and ARA agreed with manuscript results and conclusions. VB, MB, and ES jointly developed the structure and arguments for the paper. PC, ARA, BF, and DO made critical revisions and approved the final version. All authors reviewed and approved the final manuscript.

DISCLOSURES AND ETHICS

As a requirement of publication the authors have provided signed confirmation of their compliance with ethical and legal obligations including but not limited to compliance with ICMJE authorship and competing interests guidelines, that the article is neither under consideration for publication nor published elsewhere, of their compliance with legal and ethical guidelines concerning human and animal research participants (if applicable), and that permission has been obtained for reproduction of any copyrighted material. This article was subject to blind, independent, expert peer review. The reviewers reported no competing interests.

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