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# Personality disorders among patients accessing alcohol detoxification treatment: prevalence and gender differences

Rocco L. Picci (a), Federica Vigna-Taglianti (b,c), Francesco Oliva (a), Federica Mathis (c), Silena Salmaso (c), Luca Ostacoli (a), Alessandro Jaretti Sodano (d), Pier Maria Furlan (a)

a Department of Mental Health, University of Torino "San Luigi Gonzaga" - 10043 Orbassano (TO), Italy

b Department of Clinical and Biological Sciences, University of Torino "San Luigi Gonzaga" - 10043 Orbassano (TO), Italy

c Piedmont Centre for Drug Addiction Epidemiology, ASL TO3 - 10095 Grugliasco (TO), Italy

d "Fatebenefratelli" Clinic - 10077 San Maurizio Canavese (TO), Italy

## Abstract

**Background:** Alcohol abuse and dependence are frequently associated with psychiatric disorders and personality disorders (PDs) with differences among gender. However, only few studies investigated gender differences in PDs among alcoholics. The aim of this study was to investigate PDs in a sample of patients accessing inpatient alcohol detoxification treatment and to describe gender differences in prevalence and comorbidity of PDs.

**Methods:** The study population consisted of 206 patients entering alcohol detoxification treatment in a specialized clinic in Italy. At enrollment, patients filled in the Millon Clinical Multiaxial Inventory-III for the assessment of PDs.

**Results:** The sample consisted of 150 males and 56 females. Twenty-five percent of males vs 12.5% of females had 1 PD; 16% vs 23%, 2 PDs; and 46% vs 48%, more than 3 PDs. A statistically significant higher proportion of females got high scores on avoidant (21.4% vs 9.3%), self-defeating (50.0% vs 24.0%), and borderline scales (42.9% vs 25.3%). Depressive, self-defeating, and borderline PDs were frequently associated both to other PDs and among each other, particularly among females.

**Conclusions:** Borderline PD is confirmed to be more frequent among females than among males accessing alcohol detoxification treatment. More studies are needed to clarify prevalence and associations of PDs, prognosis, and gender differences in alcoholics patients.

## 1. Introduction

Alcohol is the third biggest cause of early death and illness in the European Union, behind tobacco and high blood pressure [1]. More than 60 single categories in the International Statistical Classification of Diseases, 10<sup>th</sup> Revision, have been identified as being potentially caused by drinking [2].

Alcohol abuse and dependence are defined as maladaptive patterns of drinking, leading to clinically significant impairment or distress [3]. Alcohol abuse is characterized by recurrent drinking resulting in failure to fulfill major role obligations in social, interpersonal, and legal problems and continued drinking despite recurrent problems caused or exacerbated by drinking. Alcohol dependence is a cluster of behavioral, cognitive, and physiological phenomena characterized by a strong desire to consume alcohol, impaired control over its use, persistent drinking despite harmful consequences, a higher priority given to drinking than to other activities and obligations, increased alcohol tolerance, and a physical withdrawal reaction when alcohol use is discontinued [3].

Alcohol abuse and dependence are frequently associated with psychiatric disorders. Lifetime prevalence of psychiatric disorders ranges between 38% in patients with alcohol abuse or dependence toward a value of 22.5% among non-alcoholics [4]. On the other side, a mental disorder diagnosis doubles the risk of developing an alcohol disorder during life [4].

According to the National Epidemiologic Survey on Alcohol and Related Condition, 19.8% of individuals with alcohol abuse and 39.5% of those with alcohol dependence have at least 1 personality disorder (PD) vs 14.8% of the adult American population [5]. Furthermore, clinical studies showed generally high prevalence of PDs among alcoholics, from 33.6% in the study by Driessen et al [6] to 78% in the study by DeJong et al [7] and even 89% in the study by Echeburúa et al [8]. Prevalence of PDs seems to be lower when the International Personality Disorders Examination (IPDE) tool is applied [6,9,8] and higher when other tools such as the Millon Clinical Multiaxial Inventory (MCMI), Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (DSM), Fourth Edition (DSMIV), Axis II Disorders (SCID-II), or Structured Interview for DSM-III PDs are used [7-11]. In particular, the samples of alcoholics studied by SCID-II show an high prevalence of antisocial, borderline, and paranoid PDs [10-14].

Gender differences in psychiatric disorders and alcohol abuse or dependence are well-known [15-17]. Females are more likely to have affective and anxiety disorders than males [15]. On the contrary, lifetime prevalence of alcohol abuse or dependence is much higher among males than among females [15].

PDs show a different prevalence among males and females; avoidant, dependent and paranoid PDs are more frequent among females, whereas antisocial PD, among males [15,18].

The association between obsessive-compulsive, histrionic, and antisocial PDs and alcohol dependence seems stronger for females than among males [5].

Only a few studies investigated gender differences in PDs among alcoholics. Consistently, between the studies, antisocial PD appears to be more frequent among males, whereas borderline and histrionic PDs, among females [19,11,14]. On the contrary, the prevalence of narcissistic PD was significantly higher among males in the study by Preuss et al [14] but among females in the study by Morgenstern et al [11] such as self-defeating PD. Therefore, the available current data on gender differences of PDs among alcoholics are not always consistent.

The aim of our study was to investigate PDs among patients accessing inpatient alcohol detoxification treatments and to describe gender differences, applying the MCMI-III.

## 2. Methods

### 2.1. Study population and enrollment

The study population consists of patients entering the Fatebenefratelli Clinic of San Maurizio Canavese (Turin, Italy) to receive alcohol detoxification treatment between 13th June 2005 and 30th June 2006.

The Fatebenefratelli Clinic is an inpatient clinic specialized in the treatment of alcohol abuse and psychiatric disorders where patients are sent by community psychiatrists or general practitioners to receive alcohol detoxification treatment, usually lasting approximately 20 days. The treatment consists of a fixed-schedule regimen with initial administration of lorazepam 8/10 mg/d or oxazepam 120/ 180 mg/d or equivalent dose of other benzodiazepines according to the severity of alcohol abuse or dependence and gradually tailing off the drug dose until discontinuation. During detoxification, psychopharmacological treatments and symptomatic therapy can be administered according to specific DSM-IV diagnostic indications. After the completion of the treatment, patients are referred to outpatient care system for longer treatment and follow-up.

All patients accessing the clinic for alcohol detoxification treatment in the study period were invited to participate in the study by research staff after 1 week and within 2 weeks from their access. Patients refusing to participate were asked to answer some basic questions regarding education and working and family conditions. Patients accepting to participate in the study filled a written, informed consent. Each patient was given a unique code, and data collected were registered in a database in an anonymous format.

Social and family condition, education, work, alcohol and drug consumption, hobbies, and health status were collected through clinical interview or from clinical records.

## **2.2. Alcohol use and health risk assessment**

The evaluation of frequency and amount of alcohol use in the last 12 months was conducted applying the Alcohol Use Disorders Identification Test (AUDIT) [20], a tool developed by the World Health Organization investigating alcohol use behaviors and identifying individual health risk related to alcohol use.

According to the manual of AUDIT and the scores obtained, patients were then classified in 3 categories of risk: 0 to 15, low to medium risk; 16 to 19, high risk; and 20 to 40, dependence.

According to the AUDIT manual [21], subjects at low to medium risk do not need specific intervention but should receive alcohol education and advices; subjects with high risk should be continuously monitored, receive advices, and brief counseling; and subjects with dependence need to be referred to specialists for diagnostic evaluation and treatment.

## **2.3. Personality disorder assessment**

After 1 week and within 2 weeks from their access to the clinic, patients accepting to participate in the study were asked to fill in the MCMI-III [22], a dimensional assessment tool based on a self-reported questionnaire with 175 true/false items investigating PDs. These are defined from raw scores of MCMI-III scales, weighted and converted to base rate (BR) scores. Fourteen clinical scales assess personality patterns related to DSM-IV disorders: 11 define personality pattern scales (schizoid, avoidant, depressive, dependent, histrionic, narcissistic, antisocial, aggressive, compulsive, negativistic, and self-defeating), whereas 3 define severe personality scales (schizotypal, borderline, and paranoid). Among personality pattern scales, depressive, aggressive, and self-defeating can be considered more severe variants of avoidant, antisocial, and negativistic, respectively.

According to the MCMI-III manual [22] and inherent literature about interpretation of the test [23,24], a BR of 75 is the anchor point for the presence of a disturbance, whereas a BR above 84 is suggestive of a predominance of the disturbance, bringing to pathologic structure and maladaptive defensive behaviors. However, as recommended by Choca [23], we considered a BR of 75 already suggestive of a psychopathological characteristic of personality and an intrinsically pathological syndrome both for the 3 severe personality scales (schizotypal, borderline, and paranoid) and for the 3 variants (depressive, aggressive, and self-defeating).

Around 50% of the sample got a high score on the Disclosure index of MCMI-III assessment (X scale), suggesting exaggeration of symptoms, help requests, and acute emotional stress. On the

other side, 21% of patients got high scores on desirability item, suggesting negation of psychological or personal problems.

## 2.4. Statistical analysis

The statistical analysis was performed using SAS statistical software package version 9.1 (SAS Institute Inc, Cary, NC). Baseline differences between enrolled and refusal patients were evaluated as regards socio-demographic characteristics using Pearson P value for differences among proportions ( $P < .05$ ). A statistically significant difference was observed for age, with refusals being older, and education level, with refusals having a lower educational level than enrolled patients (data not shown).

Pearson P value and Fisher Exact test were used to assess gender differences in the sample.

For the 3 PDs with the highest prevalence, gender differences in socio-demographic characteristics and alcohol use characteristic were also investigated.

Prevalence of associations between 2 PDs and comorbidity among PDs were tabulated for males and females separately.

## 3. Results

Socio-demographic characteristics of 206 enrolled patients are described in [Table 1](#).

The examined sample consisted of 150 males (72.8%) and 56 females (27.2%). On overall, approximately one third of the population was single; one third, married; and one third, divorced; but the proportion of divorced/widows was higher among females than among males. A higher proportion of females vs males had high level of education and lived with a partner and/or children. Forty-two percent of enrolled patients but only 30% of females had a regular job. A higher proportion of females had cases of alcoholism or psychiatric diagnoses in their families. Females started to drink alcohol regularly later than males, but the drinking habits become problematic earlier; the latency of problematic drinking was around 15 years for males vs 9 years for females. A higher proportion of males than females used substances in the past ([Table 1](#)).

The mean score of AUDIT inventory was 24 both among males and females. A larger proportion of females had a score of 20 or more, suggesting alcohol dependence. However, alcohol consumption was higher among males than among females, with 67% of males drinking more than 9 drinks in a drinking day vs only 37% of females ([Table 1](#)).

Only 12.7% of males and 16.1% of females were free from PDs according to MCMI-III assessment ([Table 2](#)). The proportion of patients having only 1 PD was significantly different among males and females with a lower proportion among females (12.5% vs 25.3%,  $P = .047$ ) ([Table 2](#)).

A higher proportion of males than females had high scores on schizoid, depressive, dependent and paranoid scales, whereas a higher proportion of females had high scores on histrionic, antisocial, compulsive, and schizotypal scales; however, in both cases, the differences were not statistically significant ([Table 2](#)). On the contrary, statistically significant differences among males and females were detected for avoidant, self-defeating, and borderline scales, with a higher proportion of females getting high scores: 21.4% vs 9.3 for avoidant scale; 50.0% vs 24.0%, self-defeating scale; and 42.9% vs 25.3%, borderline scale ([Table 2](#)).

Among patients with self-defeating PD, marital status was significantly different among genders ( $P = .017$ ); females were divorced in a higher proportion than males (46.4% vs 16.7%), whereas males on the contrary were more frequently single (55.6% vs 25.0%, [Table 3](#)). Self-defeating females were more educated, more frequently lived with the partner and/or the children, less frequently had a regular job, and got a higher AUDIT score than males, but these differences were not statistically significant. Finally, females were significantly older at start of regular alcohol drinking ( $P = .026$ ) ([Table 3](#)).

Among patients with borderline PD, marital status was, again, significantly different among genders ( $P = .029$ ), with females divorced or widowed in a higher proportion (41.7% vs 13.2%). Borderline

females were more educated ( $P = .080$ ), less frequently had a regular job, were significantly older at start of regular alcohol drinking, and again got an higher AUDIT score, but these differences were not statistically significant. Eighty-three percent of borderline females vs 46% of borderline males had alcoholics in the family ( $P = .004$ , [Table 3](#)).

Among patients with depressive PD, gender difference on marital status was only slightly significant ( $P = .064$ ); however, again, a higher proportion of females were divorced or widowed (45.8% vs 23.3%). The differences in education and employment were less evident, but, again, females were significantly older at start of regular alcohol drinking ( $P = .026$ ), got a higher AUDIT score ( $P = .119$ ), and more frequently than males had alcoholics in the family (70.8% vs 47.1%, [Table 3](#)).

The association of PDs among males appear to be sporadic. The most prevalent are schizotypal, borderline, and paranoid PDs associated to depressive PD, affecting 19.2%, 18.0%, and 16.7%, respectively, of females in our sample. Other associations affect the sample in lower and various proportions ([Table 4](#)).

On the contrary, the associations of PDs among females are very frequent. Borderline, self-defeating, schizotypal, depressive, and avoidant are the PDs more frequently associated with another one and among each other. Borderline PD is associated with depressive PD in 28.6% of females and with self-defeating PD in 25.0%. Selfdefeating is also associated with depressive PD in 26.8% of

females, and depressive PD is also associated with schizotypal in 23.2% of females. Avoidant and aggressive PDs appear to associate mainly with depressive PD (19.6% and 17.9%, respectively). Negativistic PD is associated with other PDs in various proportions (12.5%-16.1%). Paranoid and schizoid PDs are associated in 18% of females ([Table 4](#)).

The comorbidity among PDs within the single PD category is very high among females and less frequent among males. Among males with schizoid PD, 83% have also depressive PD. Among males with avoidant PD, 86% have also depressive PD, and 57% have also self-defeating PD. The association of other PDs is less frequent ([Table 5](#)).

Among females, 92% of those with avoidant PD have also depressive PD; 67%, self-defeating PD; 67%, borderline PD; and 67%, schizotypal PD. Among those with dependent PD, 80% have also self-defeating PD; 60%, depressive PD; and 60%, borderline PD. Among females with antisocial PD, 83% have also self-defeating PD and 67%, borderline PD. Among those with aggressive PD, 83% have also depressive PD; 75%, borderline PD; and 75%, self-defeating PD. Among females with negativistic PD, 75% have also depressive PD; 75%, borderline PD; and 67%, schizotypal PD. Among those with schizotypal PD, 87% have also depressive PD; 73%, borderline PD; and 67%, self-defeating PD ([Table 5](#)).

#### 4. Discussion

In our study, 85% of patients accessing the Fatebenefratelli Clinic for alcohol detoxification treatment were defined as having at least 1 PD according to the MCMI-III assessment. This value is higher than the 34% measured in the study by Driessen et al [6] with Composite International Diagnostic Interview(CIDI) and IPDE assessment tools, than the 52% in the study by Fernández-Montalvo et al [9] using MCMI, but quite in line with the 78% measured by DeJong with Structured Interview for DSM-III PDs assessment tool [7] and the 89% measured by Echeburúa [8] with MCMI.

According to the literature about MCMI interpretation [22,23], presence of more than 3 PDs and high scores on schizotypal, borderline, paranoid, depressive, self-defeating, or aggressive scale indicate a serious pathological characterization of personality profile. In our sample, 46.6% of patients had 3 PDs or more, 23.8% had a high score on schizotypal scale, 30.1% had a high score on borderline, and 22.8% had a high score on paranoid scale. Moreover, 53.4% of patients had a high score on depressive scale; 31.1%, on self-defeating scale; and 21.4%, on aggressive scale, suggesting a psychiatric profile particularly severe.

A careful comparison of our patients with those of other studies is not easy due both to the tools used for measuring PDs and to differences between the samples under study (eg, in terms of severity of dependence, comorbidities, medications possibly modulating PDs, etc). Despite these limitations, high rates of borderline and paranoid PDs were observed also in studies applying SCID-II: 26.1% [14], 22.4% [11], and 18.4% [12] for borderline PD and 20.7% [11], 17.8% [14], and 13.2% [12] for paranoid PD.

Somewhere differently, Echeburúa et al [8], applying IPDE and MCMI-II together, observed low prevalence of severe PDs (5.1%, borderline PD; 7%, paranoid PD; and 0%, schizotypal PD) but a high rate of compulsive PD (12%). The concordance between categorical and dimension assessment tool applied was very low ( $\kappa = 0.133$ ), confirming differences in the validity of the tools when used with diagnostic purposes.

In the study by Fernández-Montalvo et al [9] conducted using MCMI-II, 12% of patients had high scores on the self-defeating and 10% on aggressive scales against 31% and 21.4%, respectively, measured in our sample. These differences could be due to different settings (inpatients vs outpatient) as well as to a selection of less collaborative and treatment-resistant patients for admission to inpatients detoxification.

As regards gender differences, in our study, females more frequently than males had high scores on borderline (42.9% vs 25.3%,  $P = .015$ ), self-defeating (50% vs 24%,  $P < .001$ ), and avoidant scales (21.4% vs 9.3%,  $P = .02$ ). Gender differences in the prevalence of borderline PD are consistent and even higher than what were observed in previous studies [11,14,19,25]. These results indicate that alcoholic females have generally a more severe pathology with tendency to devaluation, lower capability to experience pleasure, more apprehension in social settings, more social isolation and empty feeling, and are more prone to depression [23]. Moreover, in our study, females with borderline PD more frequently than males came from families with other cases of alcoholism. These personality female patterns confirm previous findings showing that females are more likely than males to engage and relapse in heavy drinking in response to negative emotional states and interpersonal influences, suggesting gender differences in coping strategies and on personality profiles [26-29].

When examining association of PD, gender differences are still more evident. Associations among PD are sporadic among males but very frequent among females. Depressive, self-defeating, and borderline PDs are frequently associated both to other PDs and among each other, suggesting a possible female pattern. Moreover, subjects with PDs who are concurrently addicted to drugs or alcohol seem to have a poorer prognosis in terms of retention in treatment, social functioning, and crimes [12,25,30,31]. High scores on the self-defeating scale are associated with a history of suicidal attempts, premature termination of treatment, and lower adjustment potential [32]. In our sample, 50% of females got high scores on the self-defeating scale, frequently associated with high scores on depressive and borderline scales. A possible unfavourable prognosis should be taken into account in mid- and long-term treatment and care of these women.

The literature on PDs among alcoholics is affected by a large heterogeneity of results because of the design of the study, sample size, setting of enrollment, severity of alcohol disorders considered, and to the assessment tool [33]. Moreover, very few studies investigated gender differences. It is therefore needed to conduct more studies with large samples both to clarify the prevalence and the prognosis of the disturbances and the coherence of the assessment tool to make possible for the clinicians to use one tool or another to achieve a reliable diagnosis.

Given the very different needs of the female sample and a worst prognosis affecting women with alcohol and substance related problems, specific studies are needed to understand female personality patterns, needs, and response to treatments.

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Table 1  
 Characteristics of enrolled patients by gender

Characteristic	Males, n = 150		Females, n = 56		Total, N = 206	
	n	%	n	%	n	%
Age at enrolment, y; mean (SD)	46.3 (10.1)		45.4 (12.1)		46.0 (10.7)	
Marital status						
Single	56	37.3	13	23.2	69	33.5
Married/living with partner	51	34.0	19	33.9	70	34.0
Divorced/widowed	43	28.7	24	42.9	67	32.5
Education, y						
<6	24	16.0	9	16.1	33	16.0
6-8	84	56.0	26	46.4	110	53.4
>9	42	28.0	21	37.5	63	30.6
Living condition						
Living with parents	49	32.7	14	25.4	63	30.7
Living with partner/children	51	34.0	28	50.9	79	38.5
Living with friends/alone	45	30.0	9	16.4	54	26.3
Residential community	3	2.0	4	7.3	7	3.4
No fixed abode	2	1.3	0	0.0	2	1.0
Employment						
Regular job	70	46.7	17	30.4	87	42.2
Irregular job	11	7.3	6	10.7	17	8.3
Housewife, retired	28	18.7	17	30.4	45	21.8
Unemployed	41	27.3	16	28.6	57	27.7
Familiar anamnesis positive for						
Alcoholism	68	45.6	35	62.5	103	50.2
Substance use	8	5.4	2	3.6	10	4.9
Psychiatric condition	15	10.1	9	16.1	24	11.7
Age at start of regular alcohol drinking, y; mean (SD)	21.6 (8.3)		25.9 (11.3)		22.7 (9.3)	
Age at start of problematic drinking, y; mean (SD)	36.3 (11.0)		34.7 (11.4)		35.8 (11.1)	
Lifetime substance use	56	37.3	13	23.2	69	33.5
AUDIT score, mean (SD)	23.6 (7.6)		24.2 (6.3)		23.7 (7.3)	
AUDIT score, categories						
<16	30	20.0	4	7.1	34	16.5
16-19	19	12.7	8	14.3	27	13.1
>19	101	67.3	44	78.6	145	70.4
No. of drinks in the drinking days						
1-2	2	1.3	1	1.8	3	1.5
3-4	8	5.3	9	16.1	17	8.2
5-6	15	10.0	14	25.0	29	14.1
7-8	25	16.7	11	19.6	36	17.5
>9	100	66.7	21	37.5	121	58.7

Table 2  
Gender differences in PDs' rate according to MCMI-III

	Total, N = 206		Males, n = 150		Females, n = 56		<i>P</i>
	n	%	n	%	n	%	
Any PDs	178	86.4	131	87.3	47	83.9	.526
No. of PDs							
0	28	13.6	19	12.7	9	16.1	.526
1	45	21.8	38	25.3	7	12.5	.047
2	37	18.0	24	16.0	13	23.2	.230
>2	96	46.6	69	46.0	27	48.2	.777
Type of PD							
Schizoid	22	10.7	18	12.0	4	7.1	.315
Avoidant	26	12.6	14	9.3	12	21.4	.020
Depressive	110	53.4	86	57.3	24	42.9	.064
Dependent	28	13.6	23	15.3	5	8.9	.233
Histrionic	3	1.5	1	0.7	2	3.6	.180 <sup>a</sup>
Narcissistic	18	8.7	13	8.7	5	8.9	1.000 <sup>a</sup>
Antisocial	17	8.3	11	7.3	6	10.7	.409 <sup>a</sup>
Aggressive	44	21.4	32	21.3	12	21.4	.988
Compulsive	1	0.5	0	0.0	1	1.8	.272 <sup>a</sup>
Negativistic	31	19.9	29	19.3	12	21.4	.738
Self-defeating	64	31.1	36	24.0	28	50.0	<.001
Schizotypal	49	23.8	34	22.7	15	26.8	.537
Borderline	62	30.1	38	25.3	24	42.9	.015
Paranoid	47	22.8	35	23.3	12	21.4	.772

Scale thresholds: greater than 84 for all scales but depressive, aggressive, self-defeating, schizotypal, borderline, and paranoid scales, for which a threshold of greater than 74 is enough to detect a psychopathological characteristic of personality and an intrinsically pathological syndrome.

<sup>a</sup> Fisher exact test.

Table 3  
Gender differences in sociodemographic and alcohol use characteristics among patients with selected PDs

	Self-defeating (n = 64)				P	Borderline (n = 62)				P	Depressive (n = 110)				P
	Males		Females			Males		Females			Males		Females		
	n	%	n	%		n	%	n	%		n	%	n	%	
Marital status					.017					.029					.064
Single	20	55.6	7	25.0		17	44.7	9	37.5		36	41.9	9	37.5	
Married/living with partner	10	27.8	8	28.6		16	42.1	5	20.8		30	34.9	4	16.7	
Divorced/widowed	6	16.7	13	46.4		5	13.2	10	41.7		20	23.3	11	45.8	
Education, y					.239					.080 <sup>a</sup>					.673
<6	6	16.7	5	17.9		7	18.4	2	8.3		15	17.4	4	16.7	
6-8	20	55.6	10	35.7		27	71.1	14	58.3		50	58.1	12	50.0	
>8	10	27.8	13	46.4		4	10.5	8	33.3		21	24.4	8	33.3	
Living condition					.098 <sup>a</sup>					.280 <sup>a</sup>					.383
Living with parents	18	50.0	8	28.6		12	31.6	8	33.3		26	30.2	9	37.5	
Living with partner/children	10	27.8	11	39.3		16	42.1	8	33.3		28	32.6	7	29.2	
Living with friends/alone	7	19.4	4	14.3		9	23.7	4	16.7		28	32.6	5	20.8	
Other	1	2.8	5	17.9		1	2.6	4	16.7		4	4.6	3	12.5	
Employment					.055 <sup>a</sup>					.115					.683 <sup>a</sup>
Regular job	18	50.0	5	17.9		18	47.4	5	20.8		39	45.4	8	33.3	
Irregular job	3	8.3	5	17.9		4	10.5	3	12.5		7	8.1	3	12.5	
Housewife, retired	8	22.2	11	39.3		4	10.5	7	29.2		15	17.4	5	20.8	
Unemployed	7	19.4	7	25.0		12	31.6	9	37.5		25	29.1	8	33.3	
Familiar anamnesis positive for															
Alcoholism	19	54.3	19	67.9	.274	17	46.0	20	83.3	.004	40	47.1	17	70.8	.040
Substance use	1	2.9	1	3.6	1.000 <sup>a</sup>	4	10.8	1	4.2	.640 <sup>a</sup>	5	5.9	1	4.2	1.000 <sup>a</sup>
Psychiatric condition	3	8.6	6	21.4	.170 <sup>a</sup>	2	5.4	4	16.7	.200 <sup>a</sup>	11	12.9	5	20.8	.339 <sup>a</sup>
Age at start of regular alcohol drinking, y					.026 <sup>a</sup>					.338					.026
<15	2	5.7	2	7.7		4	10.8	4	18.2		7	8.2	5	23.8	
15-19	18	51.4	4	15.4		15	40.5	4	18.2		36	42.4	3	14.3	
20-24	7	20.0	10	38.5		8	21.6	7	31.8		18	21.2	8	38.1	
>24	8	22.9	10	38.5		10	27.0	7	31.8		24	28.2	5	23.8	
AUDIT score					.128					1.171 <sup>a</sup>					.119 <sup>a</sup>
<16	6	16.7	1	3.6		5	13.2	0	0.0		13	15.1	0	0.0	
16-19	7	19.4	3	10.7		2	5.3	3	12.5		8	9.3	3	12.5	
>19	23	63.9	24	85.7		31	81.6	21	87.5		65	75.6	21	87.5	

<sup>a</sup> Fisher exact test.

Table 4  
Prevalence of associations of PDs among males and females

	Avoidant		Depressive		Dependent		Narcissistic		Negativistic		Self-defeating		Schizotypal		Borderlin
	n	%	n	%	n	%	n	%	%	n	%	n	%	%	
<b>Males</b>															
Schizoid	5	3.3	15	10.0	6	4.0	0	0.0	6	4.0	8	5.3	7	4.7	7
Avoidant			12	8.0	6	4.0	0	0.0	3	2.0	8	5.3	6	4.0	4
Depressive					21	14.0	3	2.0	21	14.0	22	14.7	29	19.3	27
Dependent							0	0.0	8	5.3	9	6.0	10	6.7	12
Histrionic							0	0.0	0	0.0	0	0.0	0	0.0	0
Narcissistic									1	0.7	2	1.3	1	0.7	2
Antisocial									1	0.7	0	0.0	2	1.3	3
Aggressive									7	4.7	7	4.7	13	8.7	10
Compulsive									0	0.0	0	0.0	0	0.0	0
Negativistic											10	6.7	11	7.3	18
Self-defeating													10	6.7	11
Schizotypal															12
Borderline															
<b>Females</b>															
Schizoid	1	1.8	2	3.6	0	0.0	0	0.0	0	0.0	1	1.8	2	3.6	2
Avoidant			11	19.6	2	3.6	0	0.0	7	12.5	8	14.3	8	14.3	8
Depressive					3	5.4	1	1.8	9	16.1	15	26.8	13	23.2	16
Dependent							0	0.0	2	3.6	4	7.1	1	1.8	3
Histrionic							1	1.8	0	0.0	0	0.0	0	0.0	0
Narcissistic									0	0.0	1	1.8	0	0.0	1
Antisocial									1	1.8	5	8.9	2	3.6	4
Aggressive									7	12.5	9	16.1	7	12.5	9
Compulsive									0	0.0	0	0.0	0	0.0	0
Negativistic											7	12.5	8	14.3	9
Self-defeating													10	17.9	14
Schizotypal															11
Borderline															

Prevalences are calculated as proportions of total number of male (n = 150) and female patients (n = 56).

Table 5  
Comorbidity of PDs among males and females

PD	n	Comorbidity, n (%)													
		Schizoid	Avoidant	Depressive	Dependent	Histrionic	Narcissistic	Antisocial	Aggressive	Compulsive	Negativistic	Self-defeating	Schizotypal	Borderline	Paranoid
<b>Males</b>															
Schizoid	18		5 (27.8)	15 (83.3)	6 (33.3)	0 (0.0)	0 (0.0)	2 (11.1)	2 (11.1)	0 (0.0)	6 (33.3)	8 (44.4)	7 (38.9)	7 (38.9)	5 (27.8)
Avoidant	14	1 (7.1)		12 (85.7)	6 (42.9)	0 (0.0)	0 (0.0)	0 (0.0)	2 (14.3)	0 (0.0)	3 (21.4)	8 (57.1)	6 (42.9)	4 (28.6)	4 (28.6)
Depressive	86	2 (2.3)	15 (17.4)		21 (24.4)	0 (0.0)	3 (3.5)	6 (7.0)	16 (18.6)	0 (0.0)	21 (24.4)	22 (25.6)	29 (33.7)	27 (31.4)	25 (29.1)
Dependent	23	0 (0.0)	6 (26.1)	6 (26.1)		0 (0.0)	0 (0.0)	0 (0.0)	5 (21.7)	0 (0.0)	8 (34.8)	9 (39.1)	10 (43.5)	12 (52.2)	11 (47.8)
Histrionic	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Narcissistic	13	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		3 (23.1)	3 (23.1)	0 (0.0)	1 (7.7)	2 (15.4)	1 (7.7)	2 (15.4)	3 (23.1)
Antisocial	11	0 (0.0)	2 (18.2)	0 (0.0)	0 (0.0)	0 (0.0)	3 (27.3)		6 (55)	0 (0.0)	1 (9.1)	0 (0.0)	2 (18.2)	3 (27.3)	3 (27.3)
Aggressive	32	0 (0.0)	2 (6.3)	2 (6.3)	5 (15.6)	0 (0.0)	3 (9.4)	6 (18.8)		0 (0.0)	7 (21.9)	7 (21.9)	13 (40.6)	10 (31.3)	11 (34.4)
Compulsive	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negativistic	29	0 (0.0)	6 (20.7)	3 (10.3)	8 (27.6)	0 (0.0)	1 (3.4)	1 (3.4)	7 (24.1)	0 (0.0)		10 (34.5)	11 (37.9)	18 (62.1)	14 (48.3)
Self-defeating	36	1 (2.8)	8 (22.2)	8 (22.2)	9 (25.0)	0 (0.0)	2 (5.6)	0 (0.0)	7 (19.4)	0 (0.0)	10 (27.8)		10 (27.8)	11 (30.6)	9 (25.0)
Schizotypal	34	2 (5.9)	7 (20.6)	6 (17.6)	10 (29.4)	0 (0.0)	1 (2.9)	2 (5.9)	13 (38.2)	0 (0.0)	11 (32.4)	10 (29.4)		12 (35.3)	20 (58.8)
Borderline	38	2 (5.3)	7 (18.4)	4 (10.5)	12 (31.6)	0 (0.0)	2 (5.3)	3 (7.9)	10 (26.3)	0 (0.0)	18 (47.4)	11 (28.9)	12 (31.6)		13 (34.2)
Paranoid	35	1 (2.9)	5 (14.3)	4 (11.4)	11 (31.4)	0 (0.0)	3 (8.6)	3 (8.6)	11 (31.4)	0 (0.0)	14 (40.0)	9 (25.7)	20 (57.1)	13 (37.1)	
<b>Females</b>															
Schizoid	4		1 (25.0)	2 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (25.0)	2 (50.0)	2 (50.0)	1 (25.0)
Avoidant	12	1 (8.3)		11 (91.7)	2 (16.7)	0 (0.0)	0 (0.0)	1 (0.0)	5 (41.7)	0 (0.0)	7 (58.3)	8 (66.7)	8 (66.7)	8 (66.7)	3 (25.0)
Depressive	24	2 (8.3)	11 (45.8)		3 (12.5)	0 (0.0)	1 (0.0)	4 (0.0)	10 (41.7)	0 (0.0)	9 (37.5)	15 (62.5)	13 (54.2)	16 (66.7)	6 (25.0)
Dependent	5	0 (0.0)	2 (40.0)	3 (60.0)		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (40.0)	4 (80.0)	1 (20.0)	3 (60.0)	1 (20.0)
Histrionic	2	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Narcissistic	5	0 (0.0)	0 (0.0)	1 (20.0)	0 (0.0)	1 (20.0)		1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (20.0)	0 (0.0)	1 (20.0)	1 (20.0)
Antisocial	6	0 (0.0)	1 (16.7)	4 (66.7)	0 (0.0)	0 (0.0)	1 (16.7)		2 (33.3)	0 (0.0)	1 (16.7)	5 (83.3)	2 (33.3)	4 (66.7)	0 (0.0)
Aggressive	12	0 (0.0)	5 (41.7)	10 (83.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (16.7)		0 (0.0)	7 (58.3)	9 (75.0)	7 (58.3)	9 (75.0)	5 (41.7)
Compulsive	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negativistic	12	0 (0.0)	7 (58.3)	9 (75.0)	2 (16.7)	0 (0.0)	0 (0.0)	1 (8.3)	7 (58.3)	0 (0.0)		7 (58.3)	8 (66.7)	9 (75.0)	6 (50.0)
Self-defeating	28	1 (3.6)	8 (28.6)	15 (53.6)	4 (14.3)	0 (0.0)	1 (3.6)	5 (17.9)	9 (32.1)	0 (0.0)	7 (25.0)		10 (35.7)	14 (50.0)	7 (25.0)
Schizotypal	15	2 (13.3)	8 (53.3)	13 (86.7)	1 (6.7)	0 (0.0)	0 (0.0)	2 (13.3)	7 (46.7)	0 (0.0)	8 (53.3)	10 (66.7)		11 (73.3)	7 (46.7)
Borderline	24	2 (8.3)	8 (33.3)	16 (66.7)	3 (12.5)	0 (0.0)	1 (4.2)	4 (16.7)	9 (37.5)	0 (0.0)	9 (37.5)	14 (58.3)	11 (45.8)		5 (20.8)
Paranoid	12	1 (8.3)	3 (25.0)	6 (50.0)	1 (8.3)	0 (0.0)	1 (8.3)	0 (0.0)	5 (41.7)	0 (0.0)	6 (50.0)	7 (58.3)	7 (58.3)	5 (41.7)	

The table should be read as follows: 83% of males with schizoid PD also had depressive PD; 92% of females with avoidant PD also had depressive PD.