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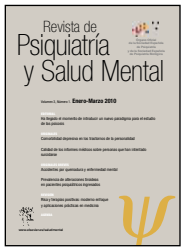

ORIGINAL ARTICLES

Depressive Comorbidity in Personality Disorders

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KEYWORDS
Personality disorders;
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Abstract
Introduction: We aimed to investigate the nature of the associations between PD clusters and MDs, functionality and mental health services use.
Methods: This is a case register study of all cases with a diagnosis of PD detected clinically in a well-defined area in the province of Barcelona covered by 7 Community Mental Health Teams. DSM-IV diagnoses were established by fully trained psychiatrists. Data was also gathered on socio-demographic variables; functional status (GAF) and data on use of health resources, using a systematic computerized method. We performed a non-parametric univariate statistical analysis.
Results: We found a higher percentage of major depressive disorder (MDD) among cluster C patients (17%), followed by cluster A (10%) and cluster B (9, 8%). As for the comorbidity between PD clusters and dysthymic disorder, we found that the prevalence was higher among cluster B patients (23,7%) than cluster C (20,2%) or cluster A (7,1%). When considering both MDs together, we found the highest prevalence among cluster C patients (36,87%), followed by cluster B (33,5%) and cluster A (17,1%). Cluster A patients showed worse functioning and visited hospitals most.
Conclusions: A high comorbidity between all MDs analyzed and personality disorders was found, being particularly prominent among cluster C PDs.

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PALABRAS CLAVE
Trastornos de personalidad;
Trastornos depresivos;
Comorbilidad;
Pronóstico

Comorbilidad depresiva en los trastornos de la personalidad

Resumen
Introducción: Nuestro objetivo fue investigar las asociaciones entre *clusters* de trastornos de personalidad (TP), trastornos del estado de ánimo (TA), funcionalidad y el uso de servicios de salud.
Métodos: Éste es un estudio de registro de todos los casos diagnosticados con un TP detectado clínicamente en uno de los siete equipos de salud mental de un área bien definida de la provincia de Barcelona. Los diagnósticos DSM-IV fueron establecidos por psiquiatras bien entrenados. También se recogieron datos sobre variables sociodemográficas, estado funcional (GAF) y sobre uso de los recursos de salud mediante un método sistemático computarizado. Realizamos análisis estadísticos no paramétricos univariables.
Resultados: Encontramos un mayor porcentaje de trastorno depresivo (TD) entre pacientes del *cluster* C (17%), seguido del *cluster* A (10%) y el B (9,8%). En cuanto a la comorbilidad entre *cluster* de TP y trastorno distímico, encontramos que la prevalencia era mayor para pacientes del *cluster* B (23,7%) que del C (20,2%) o del A (7,1%). Cuando se consideraban ambos TA juntos, encontramos que la mayor prevalencia aparecía en pacientes del *cluster* C (36,87%), seguido del *cluster* B (33,5%) y del A (17,1%). Los pacientes de *cluster* A mostraban peor funcionamiento y visitaban con mayor frecuencia los hospitales.
Conclusiones: Se encontró una alta comorbilidad entre todos los TA analizados y los trastornos de personalidad; esta asociación fue especialmente importante en el *cluster* C.

Introduction

Personality disorders are psychopathological entities that imply unadaptive behavioral patterns and they affect all areas of intra and interpersonal relationships, they are often associated to axis I mental disorders, especially depressive and anxiety disorders.[1] Comorbidity among personality disorders (PD) and mood disorders (MD) is a complex phenomenon that psychiatrists and other mental health professionals come across frequently. Certain notions about the relationship between MDs and PDs seem fairly accepted. Many PD traits have been identified as risk factors for depressive disorders[2-11] and it is also well known that the treatment of patients with a MD is less effective when patients also suffer from a PD.[10,12-19]

One of the MDs most frequently associated to PDs is major depression disorder (MDD). It frequently presents comorbidity with other axis I and II disorders.[20-25] Several studies have focused on what effects PDs have on clinical outcome, course and treatment of depressive disorders.[10,12-16,18,19,26-28] Although prevalence studies show a great scattering of results depending on the type of design, sample and instruments used in the assessment (table 1) in general, the prevalence of comorbidity between MDD and PD has been reported as ranging from 6 to 87%.[1] The PDs most commonly associated to MDDs depends on the clusters, as is shown figure 1. The influence of PDs on MDD has pointed to clinical aspects such as an earlier onset of depressive symptoms;[1,10,29-33] longer time to respond to treatment;[14-16,19,31,34-40] higher rates of suicide and suicide attempts,[10,12,30,41-44] longer lasting depressive episodes[14,21,30,35,36,45] as well as a higher frequency of relapse and hospital admissions;[30,34,36,43,46-48] poorer social support[28,34,48-51] and high divorce and separation rates.[10,14] As for therapeutic response, there are contradictions amongst previous studies, some saying that there is a limited influence of personality variables on the course of MDD,[27,28,52] especially in the case of cluster C,[42] whilst the majority highlight a worse therapeutic response to both psychotherapy and/or antidepressant treatment. Thus response rates range between 20 to 49% in MDD patients with comorbid PD as opposed to a higher rate of 49 to 91% among those MDD patients with no PD.[10,28,30,31,53-56]

Another MD that is frequently associated to PDs is dysthymia (D).[53,57,58] It seems that lifelong prevalence of D is about 3%, although it is higher for women (4%) than for men (2,2%)[59] but prevalence of comorbidity is very high (65-100%) when D is associated to other axis I and axis II disorders.[53,57,58,60-62] From a clinical viewpoint, the presence of PD in D patients is linked to a more severe general psychopathology, reflected by high scores on BDI and in most MMPI scales.[57] More specifically, a more severe depressive symptomatology in D has been found when associated with cluster C personality traits[62,63] as well as anxiety.[58,62] Poor recovery has been associated to depressive personality traits, cluster C PDs, as well as chronic stress[58,62]. Therapeutic response in D varies according to the studies (between 20-80%).[62,64]

In summary, there is evidence that comorbid PD is associated with potentially harmful effects on the course, treatment and outcome of MD. The current study sets out to throw light on the relationship between MDs and PD, investigating a large clinical outpatient sample with the aim of further understanding clinical and service-use implications of such relationship and its variation across PD clusters.

Table 1 This table shows the most recent prevalence studies in which the relation between PD and mood disorders has been explored. We can see there is no consensus either in the design or sample

Author	Year	Design	Sample
Abela et al	2003	Transversal	Individuals with BPD
Alnaes & Torgersen	1997	Transversal	Psychiatric Outpatients
Casey et al	2004	Prospective	Community sample
Charney et al	1981	Transversal	Depressed patients
Comtois et al	1999	Transversal	Psychiatric Outpatients
De la Fuente et al	2002	Transversal	BPD in-patients with and without co-existing MD, MD patients with and without BPD
Farabaugh et al	2005	Transvesal	MDD Psychiatric Outpatients
Fava et al	1996	Transversal	Patients receiving treatment for depression
Garyfallos et al	1999	Transversal	MDD and DD Outpatients
Gunderson et al	2008	Prospective	PD patients
Johnson et al	2005	Prospective	Community sample of children
Joyce et al	2003	Prospective	Depressed patients
Kool et al	2000	Transversal	Depressed patients
Morse et al	2005	Prospective	Patients recovering from a Major Depressive Episode
Rossi et al	2001	Transversal	MDD and Bipolat patients
Sanderson et al	1992	Transversal	MDD, DD and double depression patients
Stanley & Wilson	2006	Transversal	MDD patients
Viinamaki et al	2003	Prospective	MDD and comorbid cluster C PD patients, and MDD patients

BPD: Bipolar disorders; DD: depressive disorders MD: Major depression; MDD: major depression disorder; PD: personality disorders.

Materials and Methods

Sample and Diagnosis

The sample was made up of all patients diagnosed with any PD that had been in contact with any of the 7 Community Mental Health Teams included in the Sant Joan de Déu–Serveis de Salut Mental network between January 2001 and 2003. This network provides public mental health services, in collaboration with the Servei Català de la Salut, in a well defined area in the south of the province of Barcelona.

1657 patients were diagnosed with a PD by clinical psychiatrists using DSM-IV-TR criteria, 515 (31%) were diagnosed as Not Otherwise Specified PD and were therefore excluded from the current data analysis. The final sample consisted of the 1142 patients with a specified PD.

Design

This is a case-register study that included all cases detected by a specialized community care network that were registered using the Computerized Clincal History (HCI) from the Sant Joan de Déu-Serveis de Salut Mental (HCI SJD-SSM). Further details of the HCI package are described in more detail elsewhere.[65]

Variables Measured

We used three different outcome variables, namely DSM-IV MDD, D or any of these two MD. DSM-IV diagnoses were all established by clinical assessment performed by fully-trained consultant psychiatrists who were also trained to use the HCI SJD-SSM package. DSM-IV diagnoses of PD were then grouped into clusters A, B or C for the analysis. Data was gathered for socio-demographic factors; global functioning (measured with the GAF scale)[66] and service-use (attending the out-patient clinic, the emergency room or inpatient admissions).

Statistical Analysis

We explored the associations between variables using non-parametric univariate methods (Pearson's Chi square).

Results

Description of the Sample

The initial sample was made up of 1657 (n=1657) PD patients, of which 893 were women and 764 men. The age ranged between 18 and 91 years old, with a mean age of 43.70 (SD=15.46). The mean number of visits to each of the centers was 23.36, 1.37 and 5.31 for the out-patient clinics, emergency rooms and in-patient admissions respectively. As for the mean scores on the Global Functioning Scale (GAF) we found that it was 28.44 for patients with cluster A PDs, 46.16 for cluster B and 51.25 for cluster C PDs. 515 patients (31%) had been diagnosed as Not Otherwise Specified PDs and were therefore excluded from the data analysis because they

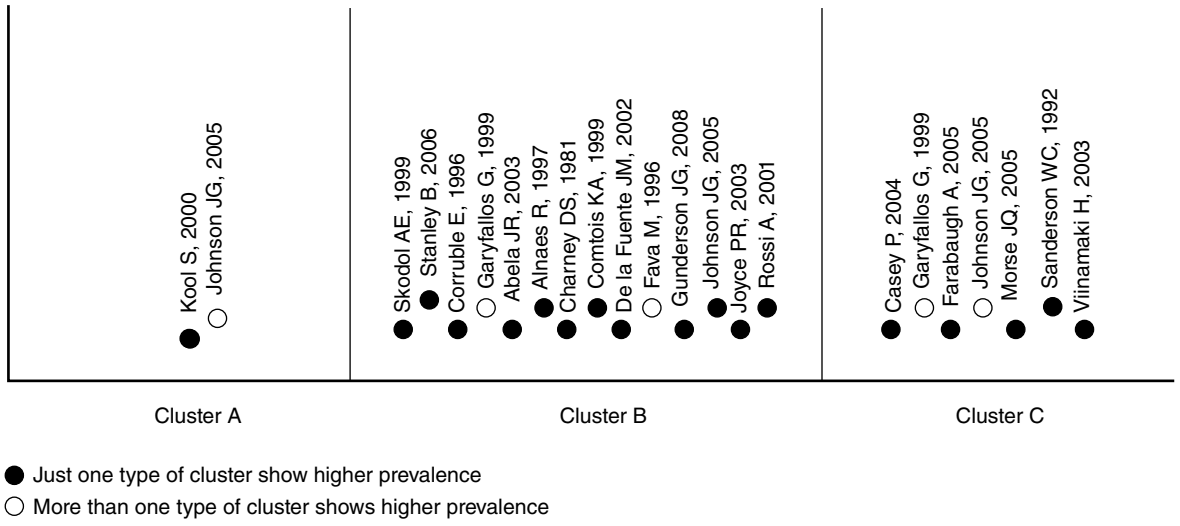

Figure 1 Associations to depressive syndromes.

composed an undefined group not ascribable to any of the three clusters. When we compared the excluded patients with those remaining in the analysis, we found statistically significant differences in that the former tended to be more frequently men, slightly younger and less frequently in need to attend the outpatient clinic.

The sample used for the remaining analyses reported here were the 1142 PD patients who had a specified PD. Of them 43.9% (n=501) were men and 56.1% (n=641) women; the mean age was 45.72 (SD= 15.89). 269 (23.55%) were diagnosed as having a DSM-IV cluster A PD; 590 (51.66%) a cluster B PD; and 279 (24.43%) a cluster C PD. Out of the patients in cluster A, 48% (n=129) were diagnosed as paranoid PD; 36.1% (n=97) schizoid PD; and 16% (n=43) schizotypical PD. As for the patients that had a cluster B PD, 49.4% (n=292) had a histrionic PD; 33% (n=193) had a borderline PD; 10% (n=59) met criteria for an antisocial PD; and 8% (n=46) for a narcissistic PD. And finally, out of the patients in cluster C PD, 135 (48.23%) had a diagnosis for a dependent PD, 107 (38.65%) an obsessive-compulsive PD; and 37 (13.12%) an avoidant PD. Details about the distribution of the different MDs can be found in figure 2.

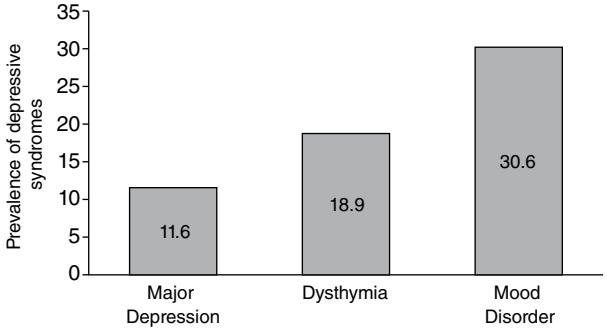

Figure 2 Proportion of individuals with a specified PD that also meet criteria for any of the mood disorders we analyzed.

Results for Cluster A Personality Disorders

Out of the 1142 patients included in the final analysis, 269 had a cluster A PD; of them 10% also had an axis I MDD diagnosis, 7.1% a D and 17.1% some MD (either MDD or D). Out of the 27 patients (10%) that had both a cluster A PD and MDD, 14 of them had an axis II paranoid PD, 9 a schizoid PD and 4 a schizotypical PD. As for the 19 patients that had D, 9 of them met DSM-IV-TR criteria for a paranoid PD, 4 for a schizoid PD and 6 for a schizotypial PD. And last, out of the 46 (17.1%) patients of this PD group with a diagnosis for an axis I MD we found that 23 had a paranoid PD, 13 a diagnosis for schizoid PD and 10 had schizotypical PDs (fig. 3).

Results for Cluster B Personality Disorders

When we analyzed the 590 patients in our sample that had any of the 4 cluster B PDs, we found that 9.83% (n=58) also had a DSM-IV-TR Axis I MDD, 23.72% (n=140) had D and 33.55% any MD (either MDD or D).

From the 9.83% of patients with a MDD and any cluster B PD, we found that 51.72% (n=30) of them had an axis II histrionic PD, 29.31% (n=17) had a borderline PD diagnosis and 18.96 (n=11) a narcissistic PD. When we consider the prevalence of D in this group of PDs, we found a higher

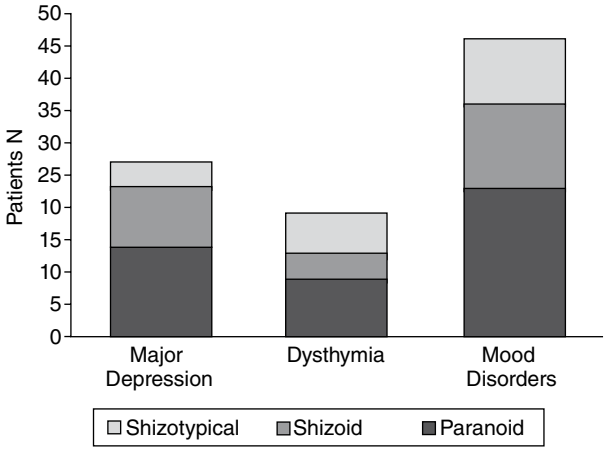

Figure 3 Number of patients with cluster A PD who meet criteria for any of the mood disorders we analyzed, divided into different PDs.

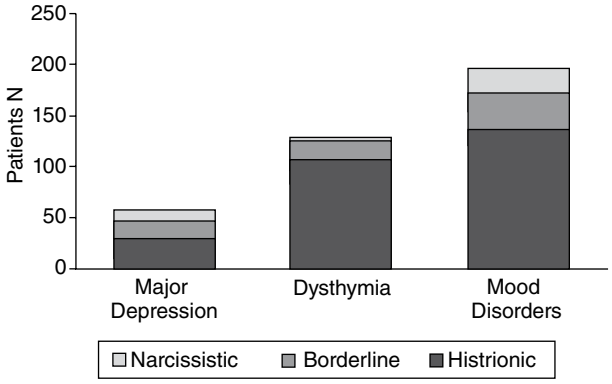

Figure 4 Number of patients from cluster B who meet criteria for the mood disorders we analyzed, divided by PD.

percentage of this axis I disorder in patients with histrionic PD (n=106) followed by those with borderline PD (n=19). As for patients with narcissistic or antisocial PDs, we found that the prevalence of these disorders was minimal (2% and 8.6% respectively).

Out of the 33.5% of patients included in this group with any MD we found that, 3 had an antisocial PD, 36 a borderline PD, 136 a histrionic PD and 23 a narcissistic PD (fig. 4).

Results for Cluster C Personality Disorders

When we studied the prevalence of MDD, D or both MDs in cluster C we found that 17.02% (n=48) of the patients that presented a MDD, 50% (n=24) had an obsessive-compulsive PD, 43.75% (n=21) a dependent PD and 6.25% (n=3) of them an avoidant PD. 20.2% (n=56) of the patients that had D, 64.28% (n=36) were patients that had a dependent PD, 19.64% (n=11) an obsessive-compulsive PD and 16.07% (n=9) an avoidant PD. As for the 36.87% (n=104) of patients with any of the above mentioned MDs, we found that, 35 met criteria for an obsessive-compulsive PD, 57 for a dependent PD and only 12 were avoidant (fig. 5).

Global Results and Comparisons amongst Clusters

When we compare the patients with any of the MDs (MDD, D or both) with contingency tables, we found that both MDD and any MD (either MDD or D) were most prevalent in cluster C, whilst D was more prevalent in cluster B. These differences observed in the prevalence, when they were analyzed using Pearson's Chi-square, turned out to be statistically significant, all of them being $p<0.005$ (table 2).

Personality Clusters and Functioning

Cluster B patients tended to have the largest mean number of consultations as they attended, over the three year

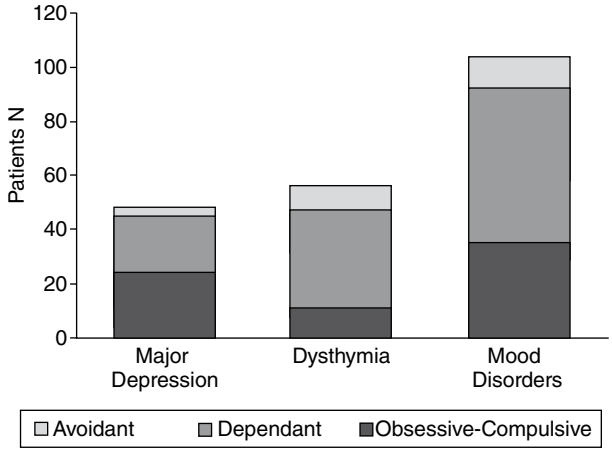

Figure 5 Number of patients from cluster C affected by the different mood disorders we analyzed, divided by PD.

period, the emergency room a mean number of 3.16 times and 30.72 times the outpatient clinic.

On the other hand, cluster A had the highest mean number of days admitted to either day hospital or in-patient ward (18.61 and 9.17 respectively). Cluster A also showed a significantly poorer global functionality with a mean GAF score of 31.71.

Discussion

We aimed to investigate the nature of the associations between PD clusters and MDs, functionality and mental health services use. Our results have the advantage of providing empirical evidence on these associations as observed in a clinical PD sample. We globally found that

Table 2 Analysis of major depressive disorder (MDD), mood disorder (MD) and dysthymia in different clusters of personality disordes (PD)

PD Cluster	Absence of MDD	Presence of MDD
Cluster A	90%	10%
Cluster B	90.2%	9.8%
Cluster C	83%	17%
Pearson chi-square	Asymp. Sig (2-sided)	P=.005
PD Cluster	**Absence of dysthymia**	**Presence of dysthymia**
Cluster A	92.9%	7.1%
Cluster B	76.3%	23.7%
Cluster C	79.8%	20.2%
Pearson chi-square	Asymp. Sig(2-sided)	P=.0001
PD Cluster	**Absence of mood disorders**	**Presence of mood disorders**
Cluster A	82.9%	17.1%
Cluster B	66.5%	33.5%
Cluster C	62.8%	37.2%
Pearson chi-square	Asymp. Sig (2-sided)	P=.0001

This contingency table shows that both MDD and any mood disorder are most prevalent in cluster C PDs, whilst D is more prevalent in cluster B. These differences analyzed using Pearson's Chi-square, turned out to be statistically significant.

MDs are generally frequent among PDs and that this was particularly the case when both cluster B and C were considered. We also found that, as could be clinically expected, cluster B patients attended out-patient clinics and emergency rooms significantly more frequently, whilst cluster A patients were admitted more frequently and had the poorest global functionality. The main advantage of the study is the relatively large sample of patients all of which had been diagnosed with PD as their main diagnoses regardless of them having or not an additional axis I diagnosis. The study also has a number of limitations that are typical in studies based on clinically recorded medical notes although our computerized HCI system made fairly systematic data collection by homogeneously trained consultant psychiatrists. Nonetheless, extrapolation of results should not be made as the sample is clearly overselected and coming from a secondary-care pool of patients.

We found that out of the total sample, including patients with NOS PD (31% of the sample), patients with a cluster A diagnosis (16.29% of the total sample) the most frequent MD was MDD, which is not what happens in the other two clusters; in cluster B (35.66% of the sample) and in cluster C (17.02% % of the sample) there was a higher frequency of D. This is in line with previous literature.[57] This also happens when we consider all the PDs as a single group, that is, we can see that D appears in 18.9% of all patients independently of what personality cluster they belong to, while MDD appears only in 11.6% of all patients. Patients with a cluster A PD diagnosis were the less frequent, representing 16.29% of the sample. The fact that we have found a lower prevalence of D in our sample does not support previous findings.[61] According to these authors patients with D have more cluster A disorders. However, Kool et al (2000) considered MDD and double depression, this is the presence of both MDD and D, not just the presence of D on its own, what could partially explain the difference with our results as we analyzed them separately. To our knowledge; there are no other studies that have found the same results as Kool et al. (2000) whilst many support ours. In this cluster, when we consider the presence of any type of MD we can see that patients with paranoid PD are the most frequent as previously suggested.

Cluster B PDs were the most frequent, with double the frequency than the other two clusters. Most patients with a MD in this cluster suffered either from a histrionic or borderline disorder, a finding similar to that reported elsewhere.[1] We must say that in previous literature both these disorders have been found only in non-melancholic depression;[31,67] and as we have not differentiated between different types of depression it's possible that these PDs are overrepresented, just as other authors have found.[1] Nonetheless we have not come across any similar studies that have found such a high prevalence of histrionic patients, as normally the most common disorder associated to MDs in this cluster is borderline disorder.[1,68] Also in cluster B we found a clearly higher prevalence of patients with D, affecting 23.7% of the patients.

As for patients with a diagnosis in cluster C, we can say that they follow a very similar pattern of comorbidity to that found in cluster B patients, which is to say that there are more comorbid with D than MDD. The most frequently diagnosed PD in this cluster was dependent PD, this, again validates our method as it has also been reported in many studies.[69-71] As a matter of interest showing the importance of exploring mood comorbidity in PD, it has been consistently reported that patients with a MD that also have a cluster C PD have a worse response to treatment, take longer to respond and are more likely to become chronic cases.[6,13,40,72,73]

Finally, our findings on comparative functionality are within the expectable, with cluster A patients functioning significantly worse and requiring more hospital admissions, demonstrating the relatively higher severity of some of these PDs, such as the paranoid type.[74] On the whole our findings presented here add some light to knowledge about comorbidity among axes I and V with PDs and MDs, they also stress the importance of comprehensive assessment of PDs as comorbidity conveys important implications for treatment and general outcome.

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