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Do the IPDE and the MCMI-II assess the same personality disorders in patients with eating disorders?[1]

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ABSTRACT. The present *ex post facto* study aims to find out the prevalence of personality disorders (PD) in patients with eating disorders (ED) and to determine the concordance between the IPDE and MCMI-II to assess PDs in patients with an ED. Using the International Personality Disorders Examination (IPDE) and the Millon Clinical Multiaxial Inventory-II (MCMI-II) it was compared the personality profile in 84 outpatients with eating disorders. The statistical analyses have been carried out using Kappa statistic, sensitivity, specificity, positive predictive value and negative predictive value. The 54.8% of the overall sample met criteria for at least one personality disorder on the IPDE and 77.4% met the criteria on the MCMI-II. The concordance between the two measures was only marginal. The MCMI-II tend to overdiagnose specific PDs, so it is not a good assessment measure for doing PDs diagnosis. This fact is a challenge for the clinical evaluation, so implications for further research in this area are commented upon.

KEYWORDS. IPDE. MCMI. Eating disorders. Personality disorders. *Ex post facto* study.

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RESUMEN. El presente estudio *ex post facto* persigue conocer la prevalencia de los trastornos de personalidad (TP) en los trastornos de la conducta alimentaria (TCA) y determinar la concordancia entre el *IPDE* y el *MCMI-II* a la hora de medir TP en pacientes con un TCA. Se compararon los perfiles de personalidad en 84 pacientes con un TCA utilizando como instrumentos de medida el *International Personality Disorders Examination* (*IPDE*) y el *Millon Clinical Multiaxial Inventory-II* (*MCMI-II*). Para los análisis estadísticos se recurrió al estadístico Kappa, así como a las medidas de sensibilidad, especificidad, valor predictivo positivo y valor predictivo negativo. El 54,8% de la muestra total cumplía criterios para al menos un TP en el *IPDE*, mientras que el 77,4% lo hacía en el *MCMI-II*. La concordancia entre ambos instrumentos fue marginal. El *MCMI-II* tiende a sobrediagnosticar TP específicos, por lo que no es un buen instrumento de evaluación para realizar diagnósticos de TP. Estos resultados constituyen un desafío para la evaluación clínica y se comentan, por ello, las implicaciones para futuros trabajos de investigación.

PALABRAS CLAVE. *IPDE*. *MCMI*. Trastornos de la conducta alimentaria. Trastornos de personalidad. Estudio *ex-post-facto.*

RESUMO. O presente estudo *ex post facto* procurou conhecer a prevalência das perturbações de personalidade (PP) nas perturbações de comportamento alimentar (PCA) e determinar a concordância entre o *IPDE* e o *MCMI-II* no momento da medida de PP em pacientes com uma PCA. Compararam-se perfis de personalidade em 84 pacientes com uma PCA utilizando como instrumentos de medida o *International Personality Disorders Examination* (*IPDE*) e o *Millon Clinical Multiaxial Inventory-II* (*MCMI-II*). Para as análises estadísticas recorreu-se à estatística Kappa, assim como às medidas de sensibilidade, especificidade, valor preditivo positivo e valor preditivo negativo. Os 54,8% da amostra total cumpria critérios para pelo menos uma PP no *IPDE*, enquanto que 77,4% os cumpria no *MCMI-II*. A concordância entre ambos os instrumentos foi marginal. O *MCMI-II* tende a sobrediagnosticar TP específicos, pelo que não é um bom instrumento de avaliação para realizar diagnósticos de PP. Estes resultados constituem um desafio para a avaliação clínica e comenta-se por isso, as implicações para futuros trabalhos de investigação.

PALAVRAS CHAVE. *IPDE*. *MCMI*. Perturbações de comportamento alimentar. Perturbações de personalidade. Estudo *ex-post-facto*.

Introduction

Research on comorbidity between eating disorders (ED) and personality disorders (PD) has grown in recent years, since Gartner, Marcus, Halmi, and Loranger (1989) presented the first reference article about this topic. Nowadays there are many reports about that field and the unique conclusion is that the comorbidity of PDs in patients with EDs is generally very high: it can range from 20% to 80% (Díaz-Marsá, Carrasco, and Sáiz, 2000; Echeburúa and Marañon, 2001).

One of the reasons for these rates differences is the different instruments used in the studies to assess PDs. When a self-report questionnaire is used for the diagnosis of

a PD, the prevalence rates of PDs among patients with EDs range from 72% to 100% (Del Río, Torres, and Borda, 2002; Echeburúa, Marañon, and Grijalvo, 2002; Kennedy *et al*., 1995; Norman, Blais, and Herzog, 1993). However, the percentages of that comorbidity is lower (from 26% to 75%) when the PDs assessment is carried out by structured interviews (Díaz-Marsá *et al*., 2000; Gartner *et al*., 1989; Kennedy *et al*.,1995; Marañon, Echeburúa, and Grijalvo, 2004; Matsunaga *et al*., 2000; Matsunaga Kiriike, Nagata, and Yamagami, 1998).

When they are correctly designed and applied, questionnaires are measures of evaluation from which very valuable information can be obtained. In any case, they present various difficulties, such as the variability in the degree of introspection of the subjects, the possible deception, the social desirability or the "halo" effect in the answers. Structured interviews, however, are exhaustive evaluation techniques which allow us to gather detailed information about the subject by means of his verbal statements and the observation of his behaviour. Clinical judgement plays a very important role in the evaluation with interviews. Nowadays, due to the great popularity and dissemination of standardized psychiatric classifications, this type of interviews has taken on great relevance and seems to be a method which is preferable to self-reports.

One of the aims of the present *ex post facto study* (Montero and León, 2005; Ramos-Álvarez, Valdés-Conroy, and Catena, 2006) was to determine the prevalence rate of PDs in patients with an ED as measured by a structured interview (the IPDE) and by a self-report (the MCMI-II). The other, was to establish the concordance between the IPDE and MCMI-II to assess personality disorders in patients with an ED. Using accurate assessment tools is a challenge for the future and could contribute to treatment matching.

Method

Participants

This study was carried out in the course of an extensive clinical trial of the personality disorder assessment. The subjects were 84 young females (M = 22.23 years, SD = 5.17) who met criteria for an ED diagnosis according to DSM-IV-TR (American Psychiatric Association, 2000). Cases in this study included 20 people with anorexia nervosa restricting subtype (ANr), 11 with anorexia nervosa binging/purging subtype (ANp), 29 with bulimia nervosa (BNp), and 24 diagnosable as eating disorder not otherwise specified (EDNOS). The subjects were recruited in an outpatient clinical setting from the Eating Disorders Unit of Osakidetza (Basque Health Service), sited in San Sebastián (Basque Country, Spain), between January 2001 and August 2003. That specific Unit is the reference centre for an area of 350000 inhabitants.

Instruments

– International Personality Disorders Examination (IPDE; Loranger, 1995). The IPDE is a structured interview with 99 questions, divided into five general content areas (work, self, interpersonal relations, affect, and impulse control). It

covers all the criteria for the 11 Axis II disorders of DSM-IV. A Spanish version of the IPDE (López-Ibor, Pérez-Urdániz, and Rubio, 1996) was used.

– Millon Clinical Multiaxial Inventory-II (MCMI-II; Millon, 1987). The MCMI-II is a 175-item, true/false, self report questionnaire. It contains eight basic personality scales: Schizoid (1), Avoidant (2), Dependent (3), Histrionic (4), Narcissistic (5), Antisocial (6A), Aggressive-Sadistic (6B), Compulsive (7A), Passive-Aggressive (7B) and Self-Defeating (8). In addition to the basic personality patterns, there are three pathological personality scales: Schizotypal (S), Borderline (B) and Paranoid (P). According to the conservative criteria of Weltzler (1990), a base rate score above 84 is considered to be significant. In this study additional clinical syndrome scales of Axis I have not been taken into account because are not relevant for the purpose of this research. We used a Spanish version of the MCMI-II developed by Ávila (1998).

Both MCMI and IPDE have proven to have good psychometric properties in the prior literature, both in English (Blanchard and Brown, 1998; Segal and Coolidge, 1998) and in Spanish (Ávila, 1998; López-Ibor *et al*., 1996).

Procedure

The EDs were diagnosed by a clinical interview following the DSM-IV-TR diagnosis criteria. The diagnoses were established independently by one experience psychiatrist (the second author of this paper) and one clinical psychologist. Once the diagnosis for the ED was done, and before the treatment, all the patients completed two diagnosis sessions. In the first one, all of them filled in the MCMI-II and the IPDE screening test. In the second one, they were interviewed with the IPDE. They answered the questions related to that personality scales which had been positive at the screening. The IPDE interview was mainly conducted by a doctoral-level psychologist with extensive experience in diagnostic assessment with structured interviews (the first author of this paper). Interdiagnostician reliability was quite good.

In this study the data analyzed have been the following ones: a) the overall prevalence rate of personality disorders assessed both with the IPDE and with the MCMI-II; and b) the concordance in PDs diagnosis between the two assessment instruments used (IPDE and MCMI-II). As agreement measure for assessing the concordance between the two instruments there have been used the Kappa statistic (Cohen, 1960), sensitivity [A/(A+B)]x100, specificity [D/(C+D)]x100, positive predictive value [A/(A+C)]x100, and negative predictive value [D/(B+D)]x100 (see Table 1).

TABLE 1. Concordance between IPDE and MCMI-II.

IPDE	*MCMI-II*	
	Present	Absent
Present	A	B
Absent	C	D

Results

The frequency of the 12 personality disorders and three clusters, the agreement percent between the IPDE and the MCMI-II, values for Kappa, sensitivity, specificity, positive predictive value, and negative predictive value are presented in Table 2.

TABLE 2. Agreement between IPDE and MCMI-II personality disorders.

DIAGNOSIS	*% IPDE Positives*	*% MCMI Positives*	*% Agreement*	*KAPPA*	*% SEN*	*% SPE*	*% PPV*	*% NPV*
Cluster A	1.2	32.1	66.66	-.023	0	67.46	0	98.24
Paranoid	1.2	9.5	89.28	-.022	0	90.36	0	98.69
Schizoid	0	21.4	78.57	-	-	78.57	0	100
Schizotypal	0	4.8	95.23	-	-	95.23	0	100
Cluster B	20.2	33.3	67.85	.198	52.94	71.64	32.14	85.71
Antisocial	0	13.1	86.90	-	-	86.90	0	100
Borderline	19	8.3	79.76	.164	18.75	94.11	42.85	83.11
Histrionic	2.4	25	77.38	.136*	100	76.82	9.52	100
Narcissistic	1.2	11.9	86.90	-.022	0	87.79	0	98.64
Cluster C	31	28.6	66.66	.203	42.30	77.58	45.83	75
Avoidant	16.7	14.3	85.71	.455**	50	92.85	58.33	90.27
Dependent	2.4	11.9	88.09	.132	50	89.02	10	98.64
Obsessive-compulsive	22.6	11.9	70.23	-.021	10.52	87.69	20	77.02
Any disorder	54.8	77.4	79.76	.322	91.30	39.47	64.61	78.94

*Notes***.** SEN: sensitivity; SPE: specificity; PPV: positive predictive value; NPV: negative predictive value.
*$p < .05$, **$p < .01$

In the entire sample, the overall prevalence rate for at least one PD when the IPDE was considered was 54.8%; and when the MCMI-II was considered, 77.4% of the subjects were diagnosed with at least one PD.

When the IPDE was considered, obsessive-compulsive PD (22.6%) was most commonly found, followed by borderline PD (19%) and avoidant PD (16.7%). No diagnoses of schizoid, schizotypal or antisocial PD were carried out in this sample. When the assessment was done with the MCMI-II, the most frequently found PD was the histrionic PD (25%), followed by the schizoid PD (21.4%), avoidant PD (14.3%) and antisocial PD (13.1%).

Regarding the three clusters of PDs, the cluster C (anxious-fearful subjects) PDs were most commonly diagnosed (31%) with the IPDE, and the cluster B (dramatic-erratic subjects) PDs (33.3%) with the MCMI-II. The concordance between the two measures was only marginal. In most of the personality scales the kappa value was around 0, so the agreement between the two measures was only at chance level. Only one subject (1.2% of the sample) received a cluster A diagnosis on the IPDE, compared with 27 (32.1%) on the MCMI-II. The concordance between the two measures was only marginal (kappa = -.02). The MCMI-II was not able to identify the subjects who met specific criteria for these disorders on the IPDE (SEN = 0). The relatively low rates of specificity (67) demonstrate the small ability of MCMI-II to identify subjects who did not present a PD on IPDE. However, the high rates of specificity and negative predictive value in the paranoid PD (SPE = 90.36%; NPV = 98.69%) and schizotypal PD (SPE

= 95.23%; NPV = 100%) illustrate that, for these disorders, the MCMI-II performed well in indicating when the disorder was not present on IPDE.

Twenty percent of the sample received at least one cluster B diagnosis on the IPDE compared to the 33% on the MCMI-II. The concordance between the two instruments was only marginal (kappa = .198). The MCMI-II accurately identified the 52.94% of IPDE positive cases, and overidentified as having these disorders approximately 20% of IPDE negative cases. In the borderline PD these differences were more notorious. Nineteen percent of the subjects were positive for borderline PD on the IPDE, in contrast to 8.3% on the MCMI-II. The agreement between the two measures was only at chance level (kappa = .164). The MCMI-II correctly identified less than 20% of the IPDE positive cases (SEN = 18.75), and overidentified as having these disorder more than 40% of the IPDE negative cases (PPV = 42.85%). The high rates of specificity (94.11%) and the relatively good negative predictive value (83.11%) illustrate that, for these disorders, the MCMI-II performed quite well in indicating when the disorder was not present on IPDE. Histrionic PD had the highest rate of sensitivity (100%), so the MCMI-II correctly identified the only two IPDE positive cases. However, the low rates of positive predictive values (9.52) indicate that MCMI-II overdiagnosed this disorder when it was not present on IPDE. The narcissistic PD had a very low base rate in this sample and the MCMI-II did not correctly identify the small number of patients who met threshold criteria for this disorder on the IPDE. Measured with the IPDE, the antisocial disorder was not present in this sample; in contrast, the 13.1% of the subjects were positive on the MCMI-II.

Most diagnoses on the IPDE occurred within cluster C. Here, 31% of patients met IPDE criteria for at least one cluster C disorder, and 28% met criteria on the MCMI-II. The kappa value (kappa = .203) was higher here than that observed for the other clusters but was also marginal. The MCMI-II accurately identified 42.30% of IPDE positive cases. Thirteen patients (15.47%) were incorrectly classified on MCMI-II as having one of these disorders, and fifteen (17.85%) true cases were not identified. The highest degree of concordance between the IPDE and the MCMI-II for a specific PD was achieved for avoidant PD (kappa = .455). The sensitivity and the positive predictive value were about 50%, so the probability that the MCMI-II will be positive when there is a diagnosis present on the IPDE is due to chance. The specificity and the negative predictive value were higher than 90% and, consequently, for avoidant PD the MCMI-II achieved well in indicating when the disorder was not present on IPDE. For dependent PD the agreement between IPDE and MCMI was .132 (kappa = .132). In the same way as observed for avoidant PD, the likelihood that the MCMI-II will be positive when there is a diagnosis present on the IPDE is due to chance (SEN = 50), but in this case the rate of false positives was higher (PPV = 10). The high specificity (89.02) and the negative predictive value (98.64) indicate that for dependent PD the MCMI-II reached well in indicating when the disorder was not present on IPDE. The concordance between two instruments on the obsessive-compulsive PD was extremely poor, and again the MCMI-II ability to identify positive cases on IPDE was virtually absent (SEN = 10.52).

When all PD were considered the concordance between two measures was limited (kappa = .322). The high sensitivity (91.30), nevertheless, indicates that the probability that the MCMI-II will be positive in any personality scale when the diagnosis is present on the IPDE is high.

Discussion

According to the results in previous studies of PDs in patients with EDs, this study found that the prevalence rates of comorbidity were high both in IPDE (54.8%) and MCMI-II (77.4%). As expected in the prior literature, the highest rates of PD in patients with ED were obtained with the MCMI-II. The agreement between the IPDE and the MCMI-II in diagnosing personality disorders in patients with eating disorders is very low. The MCMI-II tend to overdiagnose specific PDs, so it is not a good assessment measure for doing PDs diagnosis. This finding is consistent with this of Kennedy *et al.* (1995) using the SCID-II and the MCMI-II to assess PDs in patients with EDs. On the other hand, like Wetzler and Dubro (1990) noticed in their study, the MCMI-II detect the subjects who may have a possible PD. Therefore, we can conclude that the MCMI-II do not replace a diagnostic interview. The MCMI-II can be used as a screening tool but not as a personality disorders diagnostic instrument. The high negative predictive value indicates that the MCMI-II reached well in indicating when the disorder was not present on IPDE. In contrast, if the MCMI-II has done a PD diagnosis, probably it would be a false positive.

It would be possible to say that the PDs measurement with the MCMI-II is a statistic artefact. It can be understood clearly if we realize that 58% of subjects with at least one PD on the MCMI-II, have more than four PDs together. Another evidence for the above affirmation is that 32% of the anorexia nervosa patients have a schizoid PD assessed with the MCMI-II and no one of the same patients has the same diagnosis measured with the IPDE. Anyway these results might also reflect problems in the PDs diagnostic criteria, or could be due to genuine high PD base rates (and comorbidity rates) in eating disordered patients. For the interpretation of these discordant results between the IPDE and the MCMI-II, it has been taken into account the validity of the PDs construct. We can not forget that the ambiguousness of the PDs definition could be one of the reasons for the discordance between instruments.

The most relevant conclusions derived from the previous commentaries were that the EDs are disorders which rarely appear psychopathologically pure. It is common for them to appear complicated with Axis II clinical disorders. On the other hand, the MCMI-II was not a good diagnosis instrument to diagnose PDs in EDs. Anyway MCMI-II may function best as a screening tool and more conservative clinical norms/cutoffs could help correct overdiagnosis problems.

A limitation of this study is the moderate sized clinical sample, as well as the mixed nature of the clinical sample with respect to eating disorders diagnoses. In the future it would be useful to carry out studies focussed on separating EDs different groups (AN, BN, and EDNOS) and on clarifying the personality disorders definition in order to develop adequate evaluation instruments that could contribute to offer individually tailored professional help.

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