

*Chapter*

## **THE MILLON CLINICAL MULTIAXIAL INVENTORY–III (MCMI-III) AND THE PERSONALITY DISORDER QUESTIONNAIRE-4+ (PDQ-4+) IN A MIXED ITALIAN PSYCHIATRIC SAMPLE**

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### **SUMMARY**

Self-report questionnaires play a crucial role in the assessment of Personality Disorders (PDs); in such a context, the Millon Clinical Multiaxial Inventory–III (MCMI-III) and the Personality Disorder Questionnaire-4+ (PDQ-4+) are frequently adopted. The aim of this preliminary study was to examine the association between the MCMI-III and the PDQ-4+ in a mixed Italian psychiatric sample.

All the correlations between the MCMI-III personality scales and the correspondent PDQ-4+ scales were positive and generally good. The only exceptions were represented by the Histrionic and Narcissistic PDs. Strong associations between several MCMI-III clinical scales and PDQ-4+ personality scales also emerged.

The present data support the good correspondence between the Italian versions of MCMI-III and PDQ-4+. Nevertheless, further research on the Histrionic and Narcissistic scales is necessary. Recent literature, however, seems to support our findings.

**Keywords:** Millon Clinical Multiaxial Inventory–III; Personality Disorder Questionnaire-4+; personality disorders; assessment

## INTRODUCTION

Widiger and Samuel (2005) proposed a two-step procedure for the assessment of Personality Disorders (PDs). The first one is a screening phase, in which it is useful to administer a short and simple questionnaire with the aim of reducing the number of potential diagnoses and direct the subsequent investigation. Consequently, in the second phase specific sections of semi-structured interviews have to be administered to verify the actual occurrence of the PD (Widiger and Samuel, 2005). Moreover, clinicians are often in disagreement when assessing the same patient, despite the fact that the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition- Text Revision (DSM-IV-TR; American Psychiatric Association, 2000) provides accurate and operational diagnostic criteria. Nonetheless, it is to note that DSM-IV-TR diagnostic criteria for PDs are currently under revision because of some critical points (Skodol and Bender, 2009) and, therefore, the absence of an agreement between clinicians might be attributable to issues concerning the criteria themselves. For these reasons, the role of self-report questionnaires is crucial in helping clinicians to identify the correct diagnosis: in clinical practice, the Millon Clinical Multiaxial Inventory–III (MCMI-III; Millon, Davis, and Millon, 1997) and the Personality Diagnostic Questionnaire-4+ (PDQ-4+; Hyler, 1994) are widely adopted instruments.

MCMI-III represents the revised version of the previous MCMI (Millon, 1983) and MCMI-II (Millon, 1987), and was developed according to both DSM criteria and Millon's evolutionary model of personality (Millon, 1996). Several authors pointed out its lack of discriminant validity (Boyle and Le Dean, 2000; Lindsay, Sankis, and Widiger, 2000), which is primarily ascribable to the over-diagnosis of PDs among clinical samples. On the other hand, it has been demonstrated MCMI's good specificity (Guthrie and Mobley, 1994; Kennedy et al., 1995; Marlowe, Husband, Bonieskie, Kirby, and Platt, 1997; Messina, Wish, Hoffman, and Nemes, 2001). The PDQ-4+ is the more recent revision of the two previous PDQ (Hyler, Rieder, Spitzer, and Williams, 1983) and PDQ-R (Hyler and Rieder, 1987) and was constructed to obtain a specific correspondence with DSM-IV-TR criteria. Several authors (Davison, Leese, and Taylor, 2001; Fossati et al., 1998; Wilberg, Dammen, and Friis, 2000) suggested that the total PDQ-4+ score might be suitable for screening for the presence of PDs, as it produces many false-positive PD diagnoses, whereas the false negative rates are very low. Therefore, PDQ-4+ may be useful in identifying patients who, being above the predicted cut-off, need to be further assessed; it cannot be considered, however, as a screening instrument for specific PDs.

The occurrence of false-positive assessments is fairly common among self-report inventories (Dubro, Wetzler, and Kahn, 1988; Hyler, Skodol, Oldham, Kellman, and Doidge, 1992). On the other hand, it is to stress that self-report questionnaires are generally administered with the aim of guiding the clinician during the assessment process rather than establishing definitive diagnoses. Thus, MCMI-III and PDQ-4+'s tendency to over-diagnose might be seen as a strength rather than a limitation, since it allows the identification of a wider range of potential areas of interest and leads to a deeper and more punctual investigation when administering semi-structured interviews; this is consistent with the procedure suggested by Widiger and Samuels (2005).

A few studies making use of previous versions of both MCMI and PDQ have been conducted, but only a scarce number of them aimed at investigating the association between

them. For example, Reich and Troughton (1988) administered both the inventories to detect PDs among patients with panic disorder; Guthrie and Mobley (1994) performed a study to investigate the relative diagnostic efficiency of a series of personality questionnaires, including MCMI-II and PDQ-R, on an outpatient sample; Lindsay and Widiger (1995) administered only four scales (i.e. Histrionic, Dependent, Antisocial and Narcissistic) of both MCMI-II and PDQ-R, plus other self-report inventories, in order to detect gender biases. On the other hand, Blackburn, Donnelly, Logan and Renwick (2004) evaluated the association between MCMI-II and PDQ, finding good correlations for avoidant, schizoid and antisocial PDs, but a poor one for histrionic, narcissistic and obsessive-compulsive PDs.

To our knowledge, no previous study on the association between MCMI-III and PDQ-4+ has been performed. Indeed, only three studies have been conducted using the more recent versions of both the inventories, but they offered limited information and were aimed at investigating psychopathy and Antisocial Personality Disorder (Hicklin and Widiger, 2005), gender bias in self-report PDs inventories (Lindsay et al., 2000) and reactions of lay, patient and professional groups to self-report inventories (Blount, Evans, Birch, Warren, and Norton, 2002).

The purpose of the present preliminary study is to examine the correspondences between MCMI-III and PDQ-4+ personality scales and the association between MCMI-III clinical scales and PDQ -4+ personality scales in a mixed Italian psychiatric sample.

## METHOD

### Participants

Fifty outpatients consecutively admitted to mental health centers in Central Italy; they received a DSM-IV-TR Axis I or Axis II diagnosis using the Structured Clinical Interviews for DSM-IV (First, Spitzer, Gibbon, and Williams, 1996; First, Spitzer, Gibbon, Williams, and Benjamin, 1996). Twenty-nine subjects were males (58%) and 21 were females (42%). The mean age was 39 years ( $SD = 11.4$ ) and the mean years of education were 12.1 ( $SD = 3.7$ ); as regards marital status, 54% of participants was single, 26% married, 6% separated, 8% divorced, 4% had a live-in partner and 2% was widowed. There were no significant differences between genders as regards age ( $F_{(1,48)} = 1.919$ ;  $p = .172$ ), years of education ( $F_{(1,48)} = .297$ ;  $p = .588$ ) and marital status ( $\chi^2_{(5)} = 5.873$ ;  $p = .319$ ). The most frequent diagnosis was mood disorders (26 subjects); the remainder of the diagnoses included anxiety disorders (9 subjects), personality disorders (8 subjects), schizophrenia or other psychotic disorders (7 subjects).

### Materials and Procedure

All the participants gave their written consent to participation in the study before filling in the two questionnaires. The two inventories were administered in counter-balanced order to avoid order effects.

*MCMI-III*. It is a 175-item self-report questionnaire in a true-false format, which identifies 14 pathological personality styles. It also provides 10 scales corresponding to as many clinical syndromes, and 4 indexes to assess validity and response styles: V (Validity), X (Disclosure), Y (Desirability), Z (Debasement). Raw scores have to be transformed in standard scores defined as “Base Rates” (BR), which are based on percentiles. The internal consistency of the original version is moderate, with Cronbach alpha values ranging from .66 to .95. The mean test-retest reliability (from 5 to 14 days) is characterized by values of  $r$  equal to or greater than .82 (except for the H-Somatoform scale, which reliability resulted  $r = .96$ ). The original MCMI-III scales demonstrated good predictive power (indexes ranging from .30 to .81) and excellent sensitivity (values from .54 to .92; Millon et al., 1997). Convergent validity between the MCMI-III and Minnesota Multiphasic Personality Inventory -2 (Butcher, Dahlstrom, Graham, Tellegen, and Kraemmer, 1989) resulted good (Millon, 1997). In the Italian version (Zennaro, Ferracuti, Lang and Sanavio, 2008) the conversion of raw scores in BRs was shown not to be useful and not to increase validity when compared with the results obtained with raw scores. The convergent validity with the MMPI-2's scales resulted good (Zennaro et al., 2008) and in line with that reported by Millon and colleagues (1997). Data regarding predictive power of the Italian version revealed low validity of MCMI-III scales, whereas the effect size has been found to be good in discriminating pathologic and healthy subjects: Cohen's  $d$  values are, in most scales, less than .30 and, in 6 scales, greater than .80 (Zennaro et al., 2008).

*PDQ-4+*. Its instructions to the subject are to answer each question thinking about what happened “during most of the last years”. The inventory is composed of 99 items in a true-false format and is designed to measure the 10 PDs included in DSM-IV-TR and the 2 PDs (Negativistic and Depressive) reported in the DSM-IV-TR appendix. The mean internal consistency value of the 12 scales reported for Italian and Chinese clinical samples (Fossati et al., 1998; Yang et al., 2000) was .62 (range from .46 to .74). The test-retest reliability after 10 days was .67 (range from .48 to .79; Yang et al., 2000); after 15 days it was .87 (Kim, Choi and Cho, 2000). PDQ-4+ convergent validity has been tested with the SCID-II and the Longitudinal, Expert, All Data procedure (LEAD; Spitzer, 1983) as external diagnostic standards for PDs; results indicated a general poor diagnostic agreement between the two measures for specific PDs (Davison et al., 2001; Wilberg et al., 2000) As far as regards the Italian version, internal consistency reliability has been calculated in a sample of 300 Italian psychiatric patients; K-R values were low, ranging from .46 and .74. Concerning convergent validity, low correlations between the PDQ-4+ and the SCID-II emerged, with a range from  $r = .20$  to  $r = .40$  (Fossati, et al., 1998).

## RESULTS

For both questionnaires raw scores were used.

Table 1 shows the correlation matrix for the MCMI-III personality scales and the PDQ-4+ scales. Most of the correlations between the MCMI-III personality scales and the corresponding PDQ-4+ scales resulted positive and good; several correspondences were particularly high, specifically those for Antisocial, Schizotypal and Dependent PDs. The only exceptions concerned the correlation between the Histrionic PD scales, which resulted

negative and non significant, and the one between the two Narcissistic PD scales, which resulted very modest.

**Table 1. Correlations between the MCMI-III personality scales and the PDQ-4+ scales**

MCMI-III scales	PDQ-4+ Scales											
	Schd	Avoid	Depr	Dep	Histr	Narc	Antis	Obses	Nega	Scht	Bord	Para
1 Schizoid	58**	59**	53**	38**	30*	29*	28	-03	16	58**	38**	11
2A Avoidant	47**	63**	70**	51**	33*	32*	41**	04	38**	58**	41**	24
2B Depressive	50**	75**	77**	48**	41**	29	30*	25	48**	59**	40**	25
3 Dependent	41**	77**	79**	68**	42**	31*	36*	24	41**	57**	42**	16
4 Histrionic	-33*	-55**	-54**	-35*	-14	-13	07	-03	-25	-37**	-24	02
5 Narcissistic	09	-37**	-35*	-19	26	28*	26	17	-06	-02	05	28*
6A Antisocial	33*	20	29	36*	33*	52**	80**	12	60**	40**	49**	25
6B Aggressive	25	33*	34*	44**	42**	50**	64**	37*	62**	45**	30*	31*
7 Compulsive	39**	21	10	16	31*	43**	39**	49**	40**	44**	31*	37*
8A Negativistic	34*	48**	60**	62**	38*	42**	56**	14	45**	51**	37*	30*
8B Masochistic	48*	62**	71**	65**	43**	36*	41**	14	47**	59**	45**	20
S Schizotypal	60**	59**	61**	56**	46**	48**	50**	19	44**	76**	61**	43**
C Borderline	47**	54**	60**	48**	43**	42**	57**	27	55**	67**	65**	38*
P Paranoid	52**	49**	39**	46**	59**	57**	47**	38*	50**	68**	41**	55*

Schd = Schizoid; Avoid = Avoidant; Depr = Depressive; Dep = Dependent; Histr = Histrionic; Narc = Narcissistic; Antis = Antisocial; Obses = Obsessive-Compulsive; Nega = Negativistic; Scht = Schizotypal; Bord = Borderline; Para = Paranoid. Only correlations greater than 0.60 are highlighted.

\* p < 0.05 (2-tailed) \*\* p < 0.01 (2-tailed).

**Table 2. Correlations between the MCMI-III clinical scales and the PDQ-4+ scales**

MCMI-III Scales	PDQ-4+ Scales											
	Schd	Avoid	Depr	Dep	Histr	Narc	Antis	Obses	Nega	Scht	Bord	Para
A Anxiety	46**	58**	69**	60**	47**	37*	50**	20	45**	72**	56**	34*
H Somatoform	30*	51**	57**	49**	24	18	26	14	18	55**	29	21
N Bipolar: Manic	32*	27	34*	35*	54**	54**	53**	50**	48**	66**	55**	52**
D Dysthymia	40**	57**	75**	54**	36*	18	30*	12	21	64**	42**	24
B Alcohol Dependence	43**	42**	47**	51**	47**	55**	70**	31*	65**	55**	64**	36*
T Drug Dependence	30*	03	12	31*	09	26	62**	-05	51**	24	38**	03
R Post-traumatic Stress	54**	60**	73**	62**	50**	36*	41**	23	36*	71**	57**	28
SS Thought Disorder	52**	53**	63**	51**	52**	48**	49**	30*	45**	75**	63**	20
CC Major Depression	31*	51**	63**	37*	17	03	23	05	16	57**	34*	20
PP Delusional Disorder	56**	20	24	39**	60**	62**	52**	29	38*	66**	52**	54**

Schd = Schizoid; Avoid = Avoidant; Depr = Depressive; Dep = Dependent; Histr = Histrionic; Narc = Narcissistic; Antis = Antisocial; Obses = Obsessive-Compulsive; Nega = Negativistic; Scht = Schizotypal; Bord = Borderline; Para = Paranoid. Only correlations greater than 0.60 are highlighted. \* p < 0.05 (2-tailed) \*\* p < 0.01 (2-tailed).

The correlations between the MCMI-III clinical scales and the PDQ-4+ personality scales are displayed in table 2. Worthy of note are the associations between the MCMI-III Anxiety, Dysthymia, Post Traumatic Stress, Thought Disorder and Major Depression clinical scales and the PDQ-4+ Depressive PD scale. Moreover, both the MCMI-III Alcohol Dependence and Drug Dependence clinical scales showed high correlations with the PDQ-4+ Antisocial PD scale, while only the MCMI-III Alcohol Dependence clinical scale resulted correlated with the PDQ-4+ Negativistic and Borderline PDs scales. Lastly, high correlations between the MCMI-III Anxiety, Bipolar:Manic, Dysthymia, Post Traumatic Stress, Thought Disorder and Delusional Disorder clinical scales and the PDQ-4+ Schizotypal PD scale emerged.

## CONCLUSION

Present study examined the associations between the MCMI-III and the PDQ-4+ in a mixed Italian psychiatric sample; to our knowledge, it represents the first attempt to investigate the correspondence between the recent versions of these two self-report inventories.

The analysis of the correlations revealed excellent correspondences between the different PD scales. Moreover, the strong correlations emerged for the Antisocial and Schizotypal PDs are in line with results found by Blackburn and colleagues (2004), who made use of the MCMI-II and the PDQ-R. The Histrionic and Narcissistic PDs represented the only exceptions: in these cases, the correlations between MCMI-III and PDQ-4+ resulted not significant and very modest, respectively; this result is also consistent with that reported by Blackburn and collaborators (2004). Moreover, Widiger and Boyd (2009) examined several studies that have reported convergent validity between different self-report measures for PDs and found that the lowest median values were for Compulsive and Narcissistic PDs.

The absence of association between the two scales for the Histrionic PD might be explained by the nature of the items comprising the MCMI-III Histrionic PD scale, that pertain to a larger range of attitudes and behaviors than those of PDQ-4+, which are fewer and mostly circumscribed. Specifically, the MCMI-III Histrionic PD scale's prototypical items seem to concern mainly extroverted personality, whereas non-prototypical items are mostly indicative of the absence of both introversion and depressed mood. Our results are also in line with this hypothesis, since a modest and negative correlation ( $r = -.35$ ) between the MCMI-III Histrionic scale PD and the PDQ-4+ Depressive PD one emerged. This consideration is consistent with previous studies (Craig, 2005; Craig and Olson, 2001) that found high positive correlations between the MCMI-III Histrionic scale and items dealing with extroverted traits and ego-inflated self-evaluations and behaviors. Furthermore, it is to note that poor or absent associations between the MCMI-III Histrionic PD scale and other instruments assessing similar behavioral styles has been previously found; for example, no correlation between the MCMI-III Histrionic PD scale and the MMPI-2 Hysteria clinical scale emerged (Zennaro et al., 2008). For these reasons, several authors (Strack, 1999; Craig and Bivens, 1998; Craig, 1999, 2005; Rossi, Andries van der Ark and Sloore, 2007) suggested that elevated scores in the MCMI-III Histrionic PD scale might be indicative of a histrionic personality style, rather than a PD. Lastly, MCMI-III Histrionic and Narcissistic PD scales, together with the Compulsive PD one, has been found to show many similarities to the

MMPI-2 measures of fake-good (Lie, Correction and Superlative Scales), revealing that they might measure socially desirable behaviors (Schoenberg, Dorr, Morgan, and Burke, 2004). In addition, the results of MCMI-III factor analysis performed by Craig and Bivens (1998) revealed that the Histrionic, Narcissistic and Compulsive PDs scales represented the negative pole of a factor named "General Maladjustment", which was peculiar to a general state of psychological disturbance characterized by depression, avoidance, detachment and low self-esteem.

A great number of associations between the MCMI-III clinical scales and the PDQ-4+ personality scales also emerged: the most relevant were those concerning mood, anxiety and psychotic disorders' symptoms, which were found to be strongly associated with Depressive and Schizotypal PDs. These results are in line with other studies and reflect the frequent comorbidities between such personality styles and clinical symptoms. For example, Carpenter, Heinrichs, and Wagman (1988) identified two different classes of symptoms in patients with schizophrenia: the former one referring to the core deficits of the disorder ("primary symptoms"); the latter one concerning secondary causes ("secondary symptoms"), which comprises anxiety, depression, social isolation and medication side effects (Carpenter et al., 1988; Kirkpatrick, Buchanan, Ross, and Carpenter, 2001). In line with this classification, Cohen and Matthews (2010) suggested the involvement of both these types of symptoms also in schizotypy. Furthermore, there is evidence supporting that psychotic disorders in general are usually characterized by a prodromal phase including symptoms as anxiety and depressed mood, thus suggesting a relationship between schizotypal characteristics, anxiety and mood disorders (Gross, 1989, 1997; Yung et al., 1996). Nonetheless, it has to be noted the great occurrence of mood, anxiety and psychotic disorders in the present sample, which may have influenced these results. Finally, the MCMI-III Alcohol Dependence scale resulted strictly related with the Borderline and Negativistic PDs scales, while both Alcohol and Drug Dependence scales were strongly associated with Antisocial PD. Such findings are in agreement with clinical and research evidence supporting the comorbidity between these personality characteristics and alcohol and drug misuse (Cohen et al., 2005; Craig, 2000; Craig, Bivens, and Olson, 1997; Echeburúa, De Medina, and Aizpiri, 2005, 2007; Grant et al., 2004; Merikangas, Swedensen, Preisig, and Chazan, 1998; Sher, Bartholow, and Wood, 2000; Vanem, Krog and Hartmann, 2008).

Deserve mention that our findings may be affected by a series of shortcomings. The main one consists in the under-representation of PDs diagnoses. Indeed, more than half participants were patients diagnosed with a mood disorder; anxiety and psychotic disorders were also particularly represented. Consequently, the second limitation regards our sample's heterogeneity. The small sample size is another important issue. Therefore, such a sample's composition do not allow to generalize present results: further studies testing both convergent validity on larger samples of patients with PDs and MCMI-III personality features among clinical groups are required. Lastly, problems concerning the Histrionic PD and Narcissistic PD scales need also to be addressed.

Even with the above-mentioned limitations, overall the present preliminary study provided data supporting good correspondences between MCMI-III and PDQ-4+ personality scales; moreover, a satisfying coherence concerning the relationship between the MCMI-III clinical symptoms and the personality characteristics as measured by the PDQ-4+ was found. Therefore, present data support the association between the Italian versions of MCMI-III and PDQ-4+.

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