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The longitudinal relationship between personality disorder dimensions and global functioning in a community-residing population

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ABSTRACT

Background. Little is known about the long-term outcome of personality disorder traits. The purpose of this study was to investigate, in a community-residing population, the longitudinal relationship between psychiatrist-assessed personality disorder scores and global functioning 13–18 years later.

Method. A stratified random sample of residents of east Baltimore were examined by psychiatrists in 1981 and asssessed for DSM-III personality disorders using a semi-structured instrument, the Standardized Psychiatric Examination. A total of 292 persons were re-examined by different psychiatrists during 1994–1999 using the Schedules for the Assessment of Neuropsychiatry (SCAN). After completion of the SCAN, the subjects' functional status was evaluated using the Global Assessment of Functioning (GAF). The relationships between personality dimensions and follow-up GAF scores were evaluated using linear regression models.

Results. All of the personality disorder scales measured in 1981 were inversely related to functioning 13–18 years later, with the exception of narcissistic and compulsive scales. After controlling for Axis I disorders diagnosed contemporaneously with GAF assessment, schizoid, antisocial, borderline, histrionic, and avoidant personality disorder scores significantly predicted GAF scores.

Conclusions. Most dimensions of DSM-III personality disorder traits were significantly associated with global functioning after an interval of 15 years. However, only schizoid, antisocial, borderline, histrionic, and avoidant personality disorder traits had long-term effects on functioning when Axis I disorders at follow-up were controlled. This suggests that the functional effect of the other personality disorder traits may be mediated through their relationship with Axis I disorders. Future research is needed using more specific and sensitive outcome measures.

INTRODUCTION

Psychiatrists recognize the clinical relevance of personality disorders and for this reason these conditions are included in the diagnostic system. Patients diagnosed with personality disorders tend to experience emotional and behavioral difficulties. Empirical studies in clinical and general population samples have reported adverse consequences of personality disorders, including occupational difficulties, marital dissolution, and criminal behavior (McCraine & Kahan,

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1986; Paris *et al.* 1987; Nestadt *et al.* 1990; Johnson *et al.* 2000).

It has been suggested that individuals diagnosed with personality disorders are to be found at the extreme of a dimension characterized by the number and severity of their component trait elements (Drake & Vaillant, 1985; Nestadt *et al.* 1991). This construct implies that while individuals diagnosed with personality disorder are likely to experience emotional and behavioral consequences of a more severe form, those individuals who do not meet diagnostic criteria for the personality disorder, yet exhibit some of the necessary criteria, are prone to the same consequences albeit less severe or frequent.

There are few studies that have systematically followed persons diagnosed with personality disorders for substantial time periods (Drake & Vaillant, 1985; McGlashan, 1986; Black *et al.* 1995). Those studies have concentrated on the severe end of the personality disorders, which are disabling by definition. Many of the subjects in these studies were recruited after being institutionalized in mental hospitals or jails (Stone, 1993). Little is known about the long-term outcome of the large group of persons who exhibit traits of personality disorder across the spectrum of severity, including those who do not meet criteria for diagnosis. This issue is important because there is a nosological question as to the utility of dichotomous diagnostic categories, *versus* dimensions, for Axis II. Also, research has focused on borderline and antisocial personality disorders but little is known about other personality disorders. To overcome these limitations, it is essential to study subjects from the general population and to assess the full spectrum of personality characteristics. In the current study, we assessed the global functioning of subjects in a community-residing population who were examined by psychiatrists 15 years earlier. The goal was to determine if DSM-III personality disorder traits predict global functioning of these individuals 15 years later.

METHOD

Subjects

In 1981, 810 subjects were examined by psychiatrists in the Clinical Reappraisal (CR); these subjects were a subsample of the 3481 individuals interviewed in Baltimore as part of the Epidemiologic Catchment Area study (Romanoski *et al.* 1988; Nestadt *et al.* 1992). In 1994, we attempted to re-examine all of these individuals; 295 were re-examined between 1994 and 1999, but 515 could not be included because of mortality, refusal, or inability to locate. Compared to the subjects who were not re-examined, the re-examined subjects were younger in 1981 (mean 36 *v.* 54 years old, $p < 0{\cdot}001$), and a greater proportion were female (70% *v.* 62%, $p = 0{\cdot}02$); however, except for histrionic personality score (2·72 *v.*1·80, $p < 0{\cdot}001$), the personality disorder scores of the two groups were similar.

Diagnostic assessment

The 295 subjects were re-examined by psychiatrists using the Schedules for Clinical Assessment in Neuropsychiatry (SCAN; Wing *et al.* 1990). In addition to evaluating Axis I symptoms and disorders, the psychiatrists rated each personality trait on a scale rating from 0 ('absent') to 3 ('likely to result in distress from even minor life stresses'). The psychiatrists based their assessment on historical information provided by the subject and behavior observed during the examination, which took 2–3 hours. A dimensional score for each of the 10 DSM-III personality disorders was created by summing the score for all of the traits included in each of the personality disorders (Samuels *et al.* 1994). Assessment of global functioning was made at the conclusion of the SCAN, based on all available information, including a complete personal history that included academic, social, marital, and occupational histories. The Global Assessment of Functioning (GAF) scale was used for this purpose; it is the standard method for representing a clinician's judgment of a patient's overall level of psychosocial functioning and is rated from 1 to 100 (Endicott *et al.* 1976; APA, 1994). This assessment was made by the psychiatrists after their complete examination of the subject using the SCAN, as well as a complete personal history that included academic, social, occupational, and marital histories. The GAF was not scored in three subjects, so the sample size for analysis was $n = 292$. In 18 jointly rated interviews, the intra-class correlation coefficient for GAF scores was 0·45. For nine of these interviews, there was perfect agreement between the raters; two disagreed by 5 points; three disagreed by 10 points, and four

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Table 1. *DSM-III personality disorders and trait scores in Baltimore clinical reappraisal subjects* ($n=292$)

	Disorders *n* (%)	Trait scores		
		Mean	(S.D.)	Range
Paranoid	0 (0·0)	0·34	(1·17)	0–10
Schizoid	1 (0·4)	0·12	(0·52)	0–5
Schizotypal	2 (0·7)	0·19	(0·91)	0–8
Antisocial	6 (2·1)	1·70	(3·90)	0–11
Borderline	5 (1·8)	0·55	(1·52)	0–11
Histrionic	20 (6·8)	2·95	(4·02)	0–17
Narcissistic	0 (0·0)	0·14	(0·61)	0–6
Compulsive	9 (3·1)	1·52	(1·95)	0–12
Dependent	2 (0·7)	0·26	(0·74)	0–6
Avoidant	0 (0·0)	0·39	(1·09)	0–8

disagreed by 15–20 points. All but three of these differences involved GAF scores in the mild–minimal range (61–90).

Data analysis

Linear regression was used to investigate the relationships between each personality disorder score in 1981 and GAF score for 1994–1999. Current schizophrenia, alcohol use disorders, major depression, bipolar disorder, panic disorder, agoraphobia, and social phobia as assessed during 1994–1999 were significantly related to GAF score and were included in another set of adjusted models.

RESULTS

The mean GAF score was 74·5 (S.D. = 10·8) with a range of 35–90. Twelve subjects (4·1%) scored 50 or less, indicating serious dysfunction; 29 subjects (9·6%) scored between 51 and 60, indicating moderate dysfunction; the remaining 251 subjects (86·3%) scored more than 60, indicating at most mild dysfunction.

As shown in Table 1, the most frequent personality disorders in the sample were histrionic ($n=20$), compulsive ($n=9$), antisocial ($n=6$), and borderline ($n=5$); a total of 37 (12·9%) of the subjects had any DSM-III personality disorder.

As shown in Table 2, almost all of the personality disorder scales measured in 1981 were inversely related to functioning 13–18 years later, with the exception of narcissistic and compulsive scales. However, when Axis I disorders were included in the models, only schizoid, antisocial, borderline, histrionic, and avoidant personality disorder dimensions strongly predicted functioning.

DISCUSSION

Clinicians have long held that aspects of their patient's personalities lead to substantial difficulties which often result in their seeking psychiatric care. The present study supports this assertion in a community-residing sample of individuals not selected for treatment. We found that most of the personality disorders predicted future functional impairment. For three of the personality disorder scales (paranoid, schizotypal, and dependent), this predictive relationship disappeared when specific Axis I disorders were controlled in regression models. This may suggest that the functional impairment attributed to these personality disorders may be more a function of their relationship to the Axis I conditions than a direct impact on functioning itself. In contrast, five of the personality disorder scales (schizoid, antisocial, borderline, histrionic, and avoidant) predicted later adverse functioning, independent of Axis I conditions. Narcissistic and compulsive personality disorders did not predict later functional impairment.

These findings have clinical and research implications. First, the prospective impact of personality disorders reported in this study is based on a dimensional model of the DSM-III personality disorders and not the categories of disorder defined in DSM (APA, 1994; Skodol *et al.* 2002). This suggests that a dimensional approach is useful when evaluating the impact of personality characteristics. Second, the finding that the prediction of functional impairment for three of the personality disorders disappears after controlling for Axis I pathology may indicate that the impact of these personality disorders is mediated through their relationship to these Axis I disorders. Third, the finding that five of the 10 personality disorders predict functional impairment independent of Axis I pathology supports the DSM definition that the presence of personality disorders imparts a persistent deleterious effect on functioning. This finding notwithstanding, there may be subthreshold Axis I symptoms that effect function. Finally, the absence of any prospective

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Table 2. *Relationships between DSM-III personality disorder scores in 1981 and Global Assessment of Functioning for 1994–1999* [*Baltimore clinical appraisal subjects* (*n* = 292)]

	Unadjusted linear regression models			Adjusted linear regression models[a]		
	β (S.E.)	*t*	*p* value	β (S.E.)	*t*	*p* value
Paranoid	−1·04 (0·53)	−1·97	0·05	−0·66 (0·56)	−1·17	0·24
Schizoid	−4·33 (1·18)	−3·69	<0·001	−2·82 (1·10)	−2·56	0·01
Schizotypal	−1·61 (0·68)	−2·37	0·02	−0·66 (0·69)	−0·97	0·34
Antisocial	−0·66 (0·35)	−1·90	0·06	−0·74 (0·31)	−2·40	0·02
Borderline	−1·88 (0·40)	−4·73	<0·001	−1·54 (0·35)	−4·42	<0·001
Histrionic	−0·45 (0·17)	−2·74	0·01	−0·48 (0·14)	−3·43	0·001
Narcissistic	−0·08 (1·03)	−0·08	0·94	−0·42 (0·90)	−0·46	0·64
Compulsive	0·28 (0·34)	0·83	0·41	−0·24 (0·29)	−0·84	0·40
Dependent	−1·81 (0·83)	−2·17	0·03	−1·42 (0·75)	−1·89	0·06
Avoidant	−2·70 (0·55)	−4·88	<0·001	−2·18 (0·56)	−3·87	<0·001

[a] Controlling for current schizophrenia, alcohol use disorder, major depression, bipolar disorder, panic disorder, agoraphobia, and social phobia during 1994–1999.

functional consequences for narcissistic and compulsive personality disorders might suggest that these two personality disorders do not warrant 'disorder' status in the DSM manual. However, it needs to be seen whether these personality features have relevant clinical consequences other than their impact on function, such as significant personal distress.

It is important to consider that the 1981 personality disorder scores may be unstable or may have changed over the interval. Results from the Collaborative Longitudinal Study of Personality Disorders suggest that even among subjects who meet full diagnostic criteria, a substantial number remit in only a few years (Shea *et al*. 2002). Despite this possibility, it is conceptually interesting to consider that there is a relatively stable functional impact of these disorders over a 13–18 years time-span. It is conceivable that there are limitations to the measurement of the constituent traits of these disorders, but that there are underlying robust latent constructs. It would be valuable to improve the diagnostic measurement which is critical for clinical and research purposes. There are reports that certain personality disorder traits become less impairing with age, regardless of their stability (McGlashan, 1986). This situation would reduce the estimate of the impact of personality on disability, given the age of participants in this study; therefore our findings should be considered conservative.

Several limitations of this study should be considered. First, because our subjects were sampled from community residents, only a small number of subjects met DSM-III personality disorder diagnostic criteria. This limits the range of personality disorder scores, with fewer participants at the more severe end of the dimension, and would make our estimates conservative. Second, a considerable number of subjects examined in 1981 were unavailable at follow-up because they died, refused to participate, or were lost to follow-up. However, participants and non-participants did not differ appreciably with respect to baseline (1981) personality disorder measures. Third, the GAF may be a rather blunt method for the evaluation of functioning, and more sensitive measures of different domains of functioning would provide greater understanding of specific relationships between personality characteristics and impairment.

Despite the limitations, the results of this study suggest that many of the personality disorder trait dimensions are significantly associated with global functioning 13–18 years later. These findings underline the importance of personality disorders for clinical practice and also provide additional support for a dimensional approach for the assessment of personality disorders. Further research is needed to evaluate the impact of personality disorder trait dimensions on other more sensitive and specific clinical outcomes to evaluate more completely the consequences of the personality disorder scores.

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DECLARATION OF INTEREST

None.

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