

Research Article

The Stability of Personality Traits Despite Naturalistic Treatment for Panic Disorder

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Abstract

Objectives: Several studies indicated that patients with Panic Disorder (PD) have higher neuroticism and lower extraversion than normal controls. If anxiety and mood disorders may or may not produce a state effect on personality trait measures is still unclear. The objective of this study was to verify if personality trait scores in patients with PD differ according to the stage of their treatment.

Methods: Our sample consisted of 87 patients with PD. These patients were divided into three groups: first month of treatment; between 6 and 12 months of treatment; more than 12 months of treatment. The personality dimensions evaluated were neuroticism and extraversion.

Results: Regarding extraversion and neuroticism, there were no significant differences among the patients in the three groups, despite significant differences in the CGI, HAM-A and HAM-D scores. The neuroticism scores were correlated with all severity scales, agoraphobia and major depression, while the extraversion scores were correlated only with HAM-A, HAM-D, agoraphobia and major depression.

Conclusion: The main limitations of this study were the cross-sectional format, small samples and the assessment of only two personality dimensions. The current findings are consistent with the literature, which indicates that dimensional constructs of personality show high stability.

Keywords: Panic Disorder; Agoraphobia; Major Depressive Disorder; Personality; Co morbidity

Abbreviations

CGI: Clinical Global Impression; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, fourth edition; HAM-A: Hamilton Anxiety Rating Scale; HAM-D: Hamilton Depression Rating Scale; MDD: Major Depressive Disorder; NEO-PI-R: Revised Neuroticism, Extraversion and Openness Personality Inventory; PBC: Point-Biserial Correlation; PCC: Pearson Correlation Coefficient; PD: Panic Disorder; SCID-I: Structured Clinical Interview for DSM-IV; SRCC: Spearman's Rank Correlation Coefficient

Introduction

Neuroticism is a personality dimension that refers to one's tendency to experience negative emotions, and it is associated with negative moods, anxiety, guilt and self-dissatisfaction [1]. On the other hand, extraversion is a personality dimension related to interpersonal interaction and positive emotions, associated to assertive, confident, bold, energetic, enthusiastic and friendly behavior [1]. Many studies indicated that Panic Disorder (PD), agoraphobia, social anxiety disorder, simple phobia and Major Depressive Disorder (MDD) are associated with high neuroticism [2-4] while social anxiety and agoraphobia are correlated to low extraversion [2,3]. Patients with more co morbidity between mood and anxiety disorders displayed even higher levels of neuroticism and lower levels of extraversion [4,5].

Some authors have hypothesized that personality trait extremes

may be predisposing factors, or at least markers of risk, to anxiety disorders [6,7]. Longitudinal studies have shown that high neuroticism is correlated with both new onset and recurrent episodes of anxiety and depression episodes [7-10], confirming this hypothesis. Several studies have also demonstrated that personality disorder traits predicted worse treatment outcomes in MDD, PD, social phobia, generalized anxiety disorder and other anxiety disorders [11,12]. High neuroticism at baseline was also a predictor of poor outcome in the treatment of PD [13].

It is still controversial if there is a state effect of anxiety and depressive disorders over personality traits. Some studies indicated that personality traits may not be stable and they would return to normal levels after the treatment of an axis I disorder, such as major depression [14,15]. These studies demonstrated marked state effects on personality measures probably because they used instruments saturated with psychopathology, opposed to personality traits, such as the Minnesota Multiphase Personality Inventory or the Millon Clinical Multi-axial Inventory [14,15]. There is also evidence that some categorical constructs of personality, such as borderline, paranoid, avoidant and dependent personality disorders, are also highly affected by anxiety disorders [16,17]. Newer dimensional personality assessment instruments such as the Revised Neuroticism, Extraversion and Openness Personality Inventory (NEO-PI-R) proved to be able to capture the personality dimensions with little influence of acute axis I disorders [18,19]. Morey et al [18]. Studied personality traits in MDD patients and found a strong correlation

between the baseline scores and the scores after 6 years of follow-up, indicating that neuroticism, extraversion, openness, agreeableness and conscientiousness scores may remain stable over time, despite the treatments.

Personality traits may also be shaped by the experience of an anxiety disorder [1]. In a community study, the authors found that panic attacks during adolescence were associated with a higher prevalence of co morbid personality disorder during young adulthood [20]. According to the complication or scar hypothesis, the mood or anxiety disorder could cause personality changes, with increased dependency, insecurity and other character adaptations [21]. In adult patients with major depression, neuroticism scores decreased after the recovery, but they were still higher than the premorbid scores, indicating a residual effect of the major depression episode on personality traits [21].

It is not clear whether personality trait measures are affected by the naturalistic treatment of PD, improving simultaneously with anxiety symptoms, or remaining stable despite the clinical improvement. The objective of this study is to verify if, and to what

extent, the improvement of PD symptoms influence the personality trait scores. The authors aim to compare PD patients at different stages of the treatment and verify if there are differences on neuroticism and extraversion scores. We also aim to identify which variables are correlated to the personality traits scores.

Materials and Methods

This is a cross-sectional study of PD patients, with ages between 18 and 65, currently under treatment in the Laboratory of Panic and Respiration of the Institute of Psychiatry of the Federal University of Rio de Janeiro. All patients took antidepressants with proved efficacy in PD, imipramine, nortriptyline or selective serotonin reuptake inhibitors. Besides the use of antidepressants, some patients also took benzodiazepines. A few patients were included in an 8-week cognitive behavioral therapy protocol. Diagnoses were made with the Structured Clinical Interview (SCID-I) [22] for DSM-IV [23] just before the beginning of the treatment. Two psychiatrists from the medical staff applied the instrument.

The exclusion criteria were: unstable medical condition, pregnancy

Table 1: Demographic and clinical data in the three different phases of treatment.

		A		B		C		Statistic
		n / mean	% / SD	n / mean	% / SD	n / mean	% / SD	
Gender	Male	16	44.4%	11	40.7%	7	29.2%	ns
	Female	20	55.6%	16	59.3%	17	70.8%	
Age (years)		36.8	11.1	38.5	10.2	43.7	10.6	0.051 *
Educational level	0	4	11.1%	4	14.8%	1	4.2%	ns
	1	4	11.1%	2	7.4%	2	8.3%	
	2	3	8.3%	3	11.1%	1	4.2%	
	3	16	44.4%	11	40.7%	11	45.8%	
	4	7	19.4%	6	22.2%	5	20.8%	
	5	2	5.6%	1	3.7%	4	16.7%	
Employed		24	66.7%	19	70.4%	16	66.7%	ns
Income		4.8	4.0	5.4	4.7	5.1	3.4	ns
Agoraphobia		29	80.6%	22	81.5%	15	62.5%	ns
MDD		9	25.0%	7	25.9%	11	45.8%	ns
GAD		4	11.1%	4	14.8%	5	20.8%	ns
SAD		1	2.8%	1	3.7%	0	.0%	ns
Treatment duration (months)		0.1	0.2	6.7	1.2	39.1	34.8	<0.001 **
Familial history		13	36.1%	9	33.3%	10	41.7%	ns
Age of onset		32.2	9.8	32.0	8.7	33.7	11.3	ns
Time since onset (months)		55.7	74.8	80.8	96.6	120.2	118.2	0.008 **
Smoking	Never smoked	19	52.8%	18	66.7%	16	66.7%	ns
	Smoked before	8	22.2%	5	18.5%	4	16.7%	
	Smoker	9	25.0%	4	14.8%	4	16.7%	
CGI		4.5	1.1	3.6	1.3	3.0	.8	<0.001 **
HAM-A		22.5	8.3	9.0	4.8	11.8	6.3	<0.001 *
HAM-D		15.3	7.1	6.1	3.2	7.3	5.3	<0.001 *
Neuroticism		32.6	11.2	27.8	12.5	27.4	13.7	ns
Extroversion		23.8	9.5	24.9	7.5	24.5	8.5	ns

or the presence of suicidal risk, bipolar disorder, schizophrenia, delusional or psychotic disorders, organic brain syndrome, severe personality disorder, epilepsy, substance abuse or dependence during the previous year.

The patients were divided into three groups according to the duration of their treatment: A - within the first month of treatment; B - between 6 and 12 months of treatment; C - patients under treatment for more than 12 months. Patients who were under treatment for more than one month and less than 6 months were not included in the study.

All subjects filled the Maudsley Personality Inventory [24], which is a self-rated questionnaire created by Hans Eysenck and is used to assess the normal personality traits neuroticism and extraversion. Neuroticism is considered a temperamental sensitivity to negative stimuli, leading to fear, anxiety, depression, guilt and self-dissatisfaction. Extraversion is related to positive emotionality, energy, affiliation, sociability and dominance. The other scales used were the Clinical Global Impression (CGI) [25], the Hamilton Anxiety Rating Scale (HAM-A) [26] and the Hamilton Depression Rating Scale (HAM-D) [27].

The local Ethics Committee approved the protocol for this study and all patients signed an inform consent before entering the study.

Numeric variables with normal distribution were compared among the three groups with the ANOVA, and the post hoc test used was the t test with Bonferroni correction. The variables that did not pass in the Kolmogorov-Smirnov test or did not have a histogram with normal distribution were analyzed with the Kruskal-Wallis test, instead of the ANOVA. For variables without normal distribution and with statistically significant differences in the Kruskal-Wallis test, pair wise comparisons with the Mann-Whitney test were performed. For the nominal and ordinal variables, the statistic test used was the chi square. To calculate the correlations between the personality dimension scores and the other variables, the authors used the Pearson Correlation Coefficient (PCC) for continuous variables with normal distribution, the Spearman's Rank Correlation Coefficient (SRCC) for ordinal variables and continuous variables without normal distribution and the Point-Biserial Correlation (PBC) to correlate continuous and dichotomous variables. The PBC is a special case of PCC in which a continuous variable is correlated with a true dichotomy. All analyses were two-tailed and the level of statistical significance was set at 5%.

Results

The sample consisted of 87 PD patients, being 36 (41.4%) patients in group A, 27 (31.0%) patients in group B and 24 (27.6%) patients in group C. The mean age for the whole sample was 39.2 years of age (SD= 11.0), and the sample was composed of 53 (60.9%) females and 34 (39.1%) males.

The three samples showed little differences regarding sociodemographic characteristics, and the main difference was related to the age ($P= 0.051$). In the post hoc analysis the subjects from group A had significantly lower ages than the ones from group C ($P= 0.049$) (Table 1).

Regarding the clinical features, the differences were in the

duration of treatment ($P= <0.001$), time since onset ($P= 0.008$) and the scores of CGI ($P= <0.001$), HAM-A ($P= <0.001$) and HAM-D ($P= <0.001$) (Figure 1). There were no significant differences regarding the neuroticism ($P= 0.194$) and extraversion ($P= 0.866$) scores (Table 1) (Figure 1). The higher CGI scores were in group A, followed by group B than group C. The HAM-A and HAM-D scores were higher for group A and lower for both remaining groups. The treatment duration and time since onset were lower for group A, intermediate for group B and higher for group C.

In the post hoc analysis of CGI, HAM-A and HAM-D scores, the significant differences were found in the comparisons between the A vs. C groups and between the A vs. B groups. The difference in treatment duration was significant in all three comparisons. The time since onset showed differences in the comparisons A vs. C and B vs. C groups.

The variables correlated to neuroticism were extraversion (PCC= -0.406; $P< 0.001$), HAM-A (PCC= 0.407; $P< 0.001$), HAM-D (PCC= 0.458; $P<0.001$), agoraphobia (PBC= 0.292; $P= 0.006$) and major depressive disorder (MDD) (PBC= 0.220; $P= 0.040$). The variables correlated to the extraversion scores were HAM-A (PCC= -0.228; $P= 0.034$), HAM-D (PCC= -0.341; $P= 0.001$), time since onset (SRCC= -0.247; $P= 0.021$), agoraphobia (PBC= -0.288; $P= 0.007$) and MDD (PBC= -0.271; $P= 0.011$). The treatment duration was not correlated to the neuroticism (SRCC; $P= 0.086$) or extraversion (SRCC; $P= 0.659$) scores.

Discussion

The patients from group A, who were beginning their treatment, had higher HAM-A, HAM-D and CGI scores, as expected for this group. On the other hand, the group C patients, who were under treatment for at least one year, were older and were diagnosed with PD for a longer time. The group B had mixed characteristics. The neuroticism scores had medium-sized correlations with the severity scales and a small correlation to agoraphobia and MDD, while the

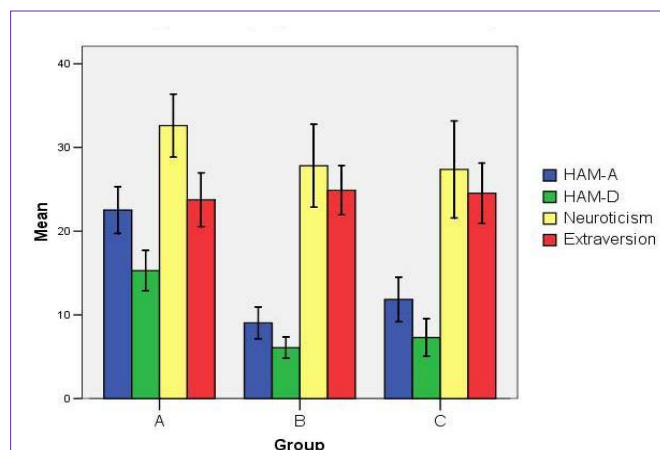


Figure 1: Symptoms and Personality Traits. This figure represents the scores of the Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), neuroticism and extraversion in the three patient groups. The error bars denote the 95% confidence interval. The scores of neuroticism and extraversion are similar in the three groups, while the HAM-A and HAM-D scores are significantly higher for group A, compared to groups B and C.

extraversion scores had small-sized correlations with the severity scales, and the diagnoses of agoraphobia and MDD. The neuroticism and extraversion scores were not significantly different among the three groups, neither the personality traits were correlated to treatment duration. These findings indicate that the severity of the anxiety and depressive symptoms in PD patients does not affect personality traits significantly.

Previous studies have indicated that the successful pharmacological treatment of PD could produce change in personality traits [16]. After treatment, these patients showed a reduction from 60% to 30% in the prevalence of personality disorders, especially regarding the avoidant, dependent and paranoid traits [16]. In another study, the remission of PD also reduced the prevalence of comorbid borderline personality disorder [17]. In a study with MDD patients, Melartin et al [28] found that the categorical stability of the personality disorder diagnoses was poor while the dimensional stability of symptoms was moderate. Only 43% of the patients with MDD and a personality disorder at baseline persisted with this personality disorder throughout the 18-month follow-up; on the other hand, the number of personality disorder symptoms had smaller modifications during the follow-up [28]. Other authors have also indicated that the dimensional approach may have several advantages in the research of personality [29].

The stability of personality traits has been demonstrated in several studies with patients with PD, MDD and personality disorders [18,19]. Starcevic and Uhlenhuth [30] compared the personality traits of 42 PD patients before and after the treatment. The differences in the personality trait scores were small and the foremost modification was a reduction of the harm avoidance score in the Personality Tridimensional Questionnaire [30]. Also, in another study, after a five-week treatment for MDD there were little or no changes on neuroticism and extraversion scores, in spite of the clinical improvement [19]. Morey et al [18] used the NEO-PI-R to reassess the personality traits of patients with MDD and personality disorders after a 6-year follow-up, and despite some minor changes, the personality traits remained stable. Recently, Carl et al [31] evaluated the efficacy of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP), a cognitive-behavioral therapy designed to target core processes of neuroticism/behavioral inhibition (N/BI) and extraversion/behavioral activation (E/BA) temperaments, in a sample of patients with anxiety disorders. The UP produced improvement in symptoms, functioning and quality of life, but had little effect on N/BI or E/BA temperaments, compared to the waitlist control group. In the treatment group the mean decrease of N/BI was 7.6% and the mean increase of E/BA was 5.7% [31]. Likewise the current study, correlations between personality trait scores and severity scales were also found by other researchers [19]. Neuroticism has been correlated to HAM-D and Beck Depression Inventory scores, and extraversion has been correlated to the HAM-D scores [19]. The findings indicate that, compared to major depressive disorder episodes, panic disorder episodes may have a similar effect on personality traits.

The current study had some limitations such as small sample sizes and a cross-sectional format. In addition, the MPI is a personality assessment instrument that does not contemplate three personality dimensions of the five-factor model: agreeableness, consciousness and openness. However, several studies indicated that the most relevant

personality traits in the study of anxiety disorders are extraversion and neuroticism [1], which were included in the MPI.

Conclusion

Studying the relationship between normal personality traits and mental disorders is a relevant issue, as it may lead to a more complete understanding of the etiology, prevention, prognosis and appropriate treatment of psychiatric disorders. The current study indicates that acute panic disorder may have a small state effect on neuroticism and extraversion. However, high neuroticism and low extraversion seem to be stable personality traits overall.

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