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Original Article

Quality of life in panic disorder: the influence of clinical features and personality traits

Qualidade de vida no transtorno de pânico: a influência de características clínicas e traços de personalidade

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Abstract

Objective: To identify which clinical features and personality traits are associated with quality of life (QoL) in panic disorder (PD) patients.
Methods: This was a cross-sectional study with PD patients. The brief version of the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) and the Big Five Inventory (BFI) were used to assess QoL and personality traits respectively. The strength of correlations was measured with Pearson's, Spearman's, and point-biserial correlation coefficients. We also performed multiple linear regressions, considering sociodemographic data and scores from clinical scales as independent variables and QoL scores as dependent variables.
Results: A total of 98 patients were evaluated. Depressive symptoms had a strong negative correlation with QoL and, to a lesser extent, panic and anxiety symptoms were also negatively correlated with QoL. While consciousness, extraversion, and agreeableness had mild positive correlations with QoL, neuroticism had a strong negative correlation.
Conclusion: Symptoms of depression, anxiety, and panic seem to have a negative impact on the QoL of PD patients. Personality traits, especially neuroticism, may also influence QoL in these patients.
Keywords: Panic disorder, quality of life, personality inventory, major depressive disorder, neuroticism.

Resumo

Objetivo: Identificar quais características clínicas e traços de personalidade são mais associados à qualidade de vida (QdV) em pacientes com transtorno de pânico (TP).
Métodos: Este foi um estudo transversal, realizado em pacientes com TP. A versão breve do Questionário de Qualidade de Vida da Associação Mundial de Saúde (World Health Organization Quality of Life Questionnaire – WHOQOL-BREF) e o Inventário dos Cinco Grande Fatores (Big Five Inventory – BFI) foram utilizados para avaliar QdV e traços de personalidade, respectivamente. A força de associação foi medida através da correlação de Pearson, de Spearman ou ponto bisserial. Foram também realizadas regressões lineares múltiplas, considerando os dados sociodemográficos e escores obtidos nas escalas clínicas como variáveis independentes, e os escores de QdV como variáveis dependentes.
Resultados: Um total de 98 pacientes foram avaliados. Sintomas depressivos apresentaram uma forte relação negativa com QdV; em menor intensidade, sintomas de TP e ansiosos também se correlacionaram com QdV. Nos domínios de personalidade, enquanto conscienciosidade, extroversão e amabilidade apresentaram uma leve correlação positiva com QdV, neuroticismo apresentou forte correlação negativa.
Conclusão: Sintomas depressivos, ansiosos e de TP parecem ter forte impacto negativo na QdV dos pacientes com TP. Traços de personalidade, principalmente neuroticismo, podem influenciar QdV nesses pacientes.
Descritores: Transtorno de pânico, qualidade de vida, inventário de personalidade, transtorno depressivo maior, neuroticismo.

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Introduction

Panic disorder (PD) is an anxiety disorder[1] known for its negative impact on patients' quality of life (QoL),[2] independently of other factors.[3] Major depressive disorder (MDD) is a common comorbidity (55.6% in lifetime),[4] which also has an impact on QoL.[5] Comorbidity with PD increases depression severity, further affecting QoL.[6] Assessment of QoL has increasingly been used as an outcome measure in clinical trials, in effectiveness studies, in health technology assessments, and in epidemiological surveys to assess the subjective health and well-being of the population.[7]

Previous studies have shown the effect of PD on these domains, mainly on psychological and physical domains.[8,9] It has also been demonstrated that successful treatment of PD is associated with improvements in QoL.[10] Other factors may impact QoL. such as PD subtype. For example, non-respiratory subtype (NR) patients had worse psychological QoL than respiratory subtype (RS) patients.[11] The RS is one of the PD subtypes described by Briggs et al.[12] Respiratory subtype patients are more likely to have a family history of PD and have higher comorbidity rates for depressive disorders, longer illness duration, and low neuroticism scores.[13] These patients also score higher on PD severity scales and improvement with pharmacological treatment is observed more quickly than in patients without this subtype.[12,14]

Personality traits are also associated with anxiety and mood disorders and are probably risk factors for PD.[15] The Five Factor Model, also known as the Big Five Inventory (BFI), is one of the personality models most used in clinical research. This model includes five personality dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.[16] Many studies have demonstrated that PD, agoraphobia, social anxiety disorder, simple phobia, and MDD are associated with high neuroticism.[17-19] Agoraphobia is also correlated with low extraversion.[18,19] There is evidence indicating that high neuroticism and low extraversion are stable personality traits overall, independent of phase of PD treatment.[20] PD patients without comorbidities have very similar neuroticism and extraversion scores to healthy patients, while patients with many comorbidities have high neuroticism and low extraversion scores.[21] Personality traits may influence the QoL of healthy subjects, as well as the QoL of psychiatric conditions[22-24] High neuroticism seems to affect QoL negatively, while high extraversion may influence QoL positively.[23]

Carrera et al.[23] demonstrated that depression, anxiety, and panic symptoms also influenced QoL in PD patients, but they did not take the effect of personality traits into account. In a study by Hollifield et al.,[24] QoL of PD patients was influenced by personality traits and a diagnosis of comorbid MDD, but the severity of depression, anxiety, or panic symptoms were not assessed.

The studies mentioned above showed that different clinical features and personality traits affect the QoL of PD patients.[22-24] However, no studies were found that compared QoL domains with clinical features, the clinical severity of PD, and personality traits. Since the RS of PD has higher scores on panic symptoms scales,[13] it should also have a greater impact on QoL than other subtypes, but the only study that has evaluated these patients showed the opposite.[11]

The aim of this study is to ascertain whether personality traits, severity of anxiety and depression symptoms, sociodemographic variables, PD subtype, and their interactions affect the QoL of PD patients. We also intend to evaluate the effect size of each of these variables on QoL.

Methods

This was a cross-sectional study with PD patients who were seeking treatment at the anxiety and depression clinic affiliated with Instituto de Psiquiatria, Universidade Federal do Rio de Janeiro (UFRJ), in Brazil. This study was designed in accordance with the principles of the Helsinki Declaration and approved by the local ethics committee. All patients provided written consent.

The clinic has a trial service, where one psychiatrist and one psychologist evaluate whether patients meet criteria for PD. In the first assessment, all patients were evaluated with the MINI v.4.417. Diagnoses were confirmed in a clinical interview with an expert psychiatrist.

Inclusion criteria were: patients with confirmed diagnosis of PD, age from 18 to 60 years, and not on current pharmacological treatment or in cognitive behavioral therapy (CBT). Exclusion criteria were: illiterate patients and patients with psychotic symptoms, severe personality disorders, intellectual impairment, and/or severe clinical or neurological diseases.

Instruments included a semi-structured questionnaire designed to collect sociodemographic data for this study. Patients were asked if they received previous treatments, if they had any relapses, and how many, and if they received previous CBT. Anxiety severity was measured using the Beck Anxiety Inventory (BAI).[25] Depressive symptoms were assessed with the Beck Depression Inventory (BDI).[26] Patients' current PD

severity was assessed using the Panic and Agoraphobia Scale (PAS),[27] Clinical Global Impression (CGI)[28] and Diagnostic Symptom Questionnaire (DSQ). Quality of life was evaluated with the abbreviated version of the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF),[29] which has been validated in many languages, including Portuguese.[30] Personality evaluations were conducted with the Big Five Inventory.[31] All scales were administered at the first interview, while patients weren't receiving any treatment.

The BAI is a self-administered questionnaire with 21 items designed to assess the severity of anxiety symptoms in adult psychiatric populations. Its score ranges from 0 to 63, with a higher score denoting a more severe degree of anxiety. The BDI is also a self-administered questionnaire, with a score ranging from 0 to 63 and higher scores indicate more severe depression symptoms. The PAS is a 13-item scale on which every item ranges from 0 to 4 and the total sum (0-52) indicates the severity of PD, with a higher score denoting a more severe degree of anxiety. Panic attack symptoms were assessed with DSQ, a list of 13 PA symptoms adapted from DSM-IV in which the presence and level of discomfort of each panic symptom experienced is rated on a 0 (none) to 4-point (very severe) scale, and the total score ranges from 0 to 52. Respiratory symptoms (fear of dying, chest pain/discomfort, shortness of breath, paresthesia, and feelings of choking) during panic attacks were measured and patients who had 4 of 5 symptoms were defined as having the RS.[12] The respiratory ratio (RR) was calculated by dividing the respiratory symptom score by the total DSQ score.[32] The BFI is a 44-item self-reported inventory that measures an individual on the Big Five Factors of personality. Each question refers to one aspect of each personality trait, and answers vary from "strongly disagree" (1 point) to "strongly agree" (5 points). By the end of the inventory, each trait is averaged and receives a dimensional value, converted into a centesimal scale (0-100): extraversion (BFI-E), agreeableness (BFI-A), conscientiousness (BFI-C), neuroticism (BFI-N), and openness to experience (BFI-O). The sums of the results give dimensional values for each personality trait. The WHOQOL-BREF has 4 QoL domains: Physical, Psychological, Social, and Environmental. It also includes two other subjective questions: "How would you rate your quality of life?" (G1) and "How satisfied are you with your health?" (G2). The results of each domain and the 2 questions vary from 0-100, with lower values indicating worse outcomes.

Correlations between two dimensional clinical variables were assessed with Pearson's correlation coefficients or Spearman's correlation coefficients, depending on the results of normality testing (Shapiro-Wilk). Point-biserial correlation coefficients were used for dimensional vs. dichotomous variables. We also performed multiple linear regressions, considering sociodemographic data, scores from BDI, BAI, CGI, and PAS as independent variables and QoL scores as dependent variables. We used the Statistical Package for the Social Sciences (SPSS), version 12.0, to perform tests. All analyses were two-tailed and statistical significance was set at 5%. Sample size was calculated using the online calculator from the Clinical and Translational Science Institute at the University of California San Francisco (http://www.sample-size.net/correlation-sample-size/). The Beta value used was 0.2 and the r value was 0.3.

Results

We recruited 98 patients with PD diagnoses. This was an adequate number, since the total sample size calculated for the correlation was 85. Demographic and clinical features are described in Tables 1 and 2. The statistical analysis is summarized in Tables 3 and 4.

Table 1 - Social, demographic, and clinical features

	n = 98
Gender	
Male	26
Female	72
Marital status	
Married	35
Unmarried	63
Employment	
Employed	45
Unemployed	53
Comorbidity	
MDD (current)	56
MDD (previous episode)	5
Agoraphobia	74
Social anxiety disorder	9
Obsessive compulsive disorder	7
General anxiety disorder	35
Number of previous treatments	
First treatment	45
1	29
2	14
3 or more	9

MDD = major depressive disorder.

Table 2 - Social, demographic, and clinical features

	Mean	SD
Age	38.4	11.5
Years in education	13.05	3.6
Income (multiples of minimum wage)	4.7	3.9
Age at onset of panic disorder (years)	35.9	12.4
Age at onset of comorbidity (years)	30.5	12.4
Clinical Global Impression (CGI)	4.8	0.9
Panic and Agoraphobia Scale (PAS)	28.3	7.7
Beck Anxiety Inventory (BAI)	37.1	13.1
Beck Depression Inventory (BDI)	25.1	10.8
Respiratory ratio	0.38	0.1
WHOQOL (G1)	49.2	26.0
WHOQOL (G2)	32.4	23.0
WHOQOL (Physical)	37.2	16.8
WHOQOL (Psychological)	41.2	18.9
WHOQOL (Social)	47.3	22.2
WHOQOL (Environmental)	45.1	14.3
BFI-E	49.5	18.1
BFI-A	63.5	16.0
BFI-C	56.9	18.5
BFI-N	70.6	17.6
BFI-O	67.1	18.0

BFI = Big Five Inventory; SD = standard deviation; WHOQOL = World Health Organization Quality of Life Questionnaire.

Table 3 - Statistical correlations

	G1		G2		Physical		Psychological		Social		Environmental	
	C	P	C	P	C	P	C	P	C	P	C	P
Female gender	-0.04	0.695	-0.008	0.940	0.052	0.614	**-0.264**	**0.009**	-0.133	0.193	-0.164	0.106
Income	0.056	0.589	0.006	0.958	0.078	0.452	-0.011	0.915	-0.091	0.379	**0.244**	**0.017**
Education (years)	**-0.272**	**0.007**	-0.087	0.392	0.097	0.344	**-0.226**	**0.026**	-0.170	0.094	0.034	0.741
Employed	-0.163	0.110	**-0.296**	**0.003**	0.113	0.266	0.035	0.734	0.001	0.992	0.019	0.854
Relapses	-0.053	0.609	-0.145	0.156	0.012	0.905	-0.200	0.051	**-0.398**	**< 0.001**	0.002	0.983
Current MDD	**-0.225**	**0.026**	-0.148	0.147	**-0.273**	**0.007**	**-0.359**	**< 0.001**	**-0.383**	**< 0.001**	**-0.224**	**0.027**
Recurrent MDD	-0.170	0.095	-0.123	0.216	**-0.263**	**0.009**	**-0.238**	**0.019**	**-0.224**	**0.026**	-0.101	0.321
Agoraphobia	**-0.292**	**0.004**	-0.127	0.214	-0.160	0.116	**-0.237**	**0.020**	-0.139	0.171	-0.107	0.294
OCD	**-0.222**	**0.028**	-0.133	0.193	-0.159	0.118	-0.170	0.096	-0.116	0.255	-0.140	0.170
GAD	-0.081	0.429	0.108	0.291	0.027	0.790	-0.151	0.140	-0.168	0.255	-0.096	0.348
Previous CBT	**-0.230**	**0.023**	-0.064	0.531	0.055	0.588	**-0.244**	**0.016**	-0.135	0.185	**-0.224**	**0.026**
FH	-0.039	0.704	-0.063	0.538	**-0.206**	**0.043**	-0.146	0.156	-0.013	0.897	0.012	0.907
CGI	-0.170	0.095	**-0.319**	**0.001**	**-0.331**	**0.001**	**-0.276**	**0.006**	**-0.199**	**0.049**	-0.104	0.308
PAS	**-0.238**	**0.018**	**-0.274**	**0.006**	**-0.357**	**< 0.001**	**-0.260**	**0.007**	**-0.238**	**0.018**	**-0.198**	**0.04**
BAI	**-0.211**	**0.037**	-0.179	0.077	**-0.403**	**< 0.001**	**-0.311**	**< 0.001**	-0.174	0.086	**-0.213**	**0.028**
BDI	**-0.461**	**< 0.001**	**-0.230**	**0.023**	**-0.570**	**< 0.001**	**-0.726**	**< 0.001**	**-0.606**	**< 0.001**	**-0.477**	**< 0.001**
RS	0.027	0.793	0.017	0.865	-0.104	0.308	-0.093	0.362	0.007	0.947	-0.052	0.610
RR	0.139	0.173	0.184	0.070	0.163	0.109	**0.213**	**0.037**	**-0.280**	**0.005**	0.009	0.932
BFI-E	0.181	0.075	0.017	0.865	0.171	0.078	**0.243**	**0.012**	0.162	0.111	0.147	0.130
BFI-A	**0.331**	**0.001**	-0.001	0.994	0.158	0.105	**0.359**	**< 0.001**	**0.357**	**< 0.001**	**0.239**	**0.013**
BFI-C	**0.403**	**< 0.001**	0.188	0.064	0.049	0.613	**0.347**	**< 0.001**	**0.405**	**< 0.001**	**0.192**	**0.046**
BFI-N	**-0.423**	**< 0.001**	-0.160	0.116	**-0.341**	**0.001**	**-0.351**	**< 0.001**	**-0.400**	**< 0.001**	**-0.323**	**0.001**
BFI-O	0.015	0.886	-0.012	0.903	0.041	0.686	0.022	0.831	-0.039	0.705	0.025	0.806

BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BFI-A = Agreeableness; BFI-C = Conscientiousness; BFI-E = Extraversion; BFI-N = Neuroticism; BFI-O = Openness to Experience; C = correlation; CBT = cognitive-behavioral therapy; CGI = Clinical Global Impression; FH = family history of panic disorder; GAD = general anxiety disorder; MDD = major depressive disorder; OCD = obsessive-compulsive disorder; P = p-value; PAS = Panic and Agoraphobia Scale; RR = respiratory ratio; RS = panic disorder respiratory subtype; SUD = substance dependence.
Bold indicates $p < 0.05$.

Table 3 refers to mean correlations and Table 4 to multiple linear regression.

With regard to QoL, the analysis shows that the best model for the physical domain included BDI, CGI severity, neuroticism, and age at onset of comorbidity. The regression model for the psychological domain included the variables BDI, CGI severity, previous CBT, current major depressive disorder, alcohol abuse, gender, conscientiousness, and agreeableness. The best regression model for the social domain included the variables BDI, number of relapses, neuroticism, and CGI. BDI, family income, and previous CBT were the variables included in the best regression model for the environmental domain of QoL. For the G1 question, the best model included BDI, BFI-N, and years in education. For G2, the best model included CGI, employment, and BDI.

Table 4 - Multiple linear regression

	Multiple linear regression		
Coefficients	**R^2**	**ß**	***p***
Physical	0.429		
BDI		-0.473	< 0.001
CGI		-0.268	< 0.001
BFI-N		-0.261	0.004
AOC		-0.179	0.045
Psychological	0.682		
BDI		-0.496	< 0.001
CGI		-0.213	0.001
Previous CBT		-0.130	0.039
Current MDD		-0.190	0.003
Alcohol abuse		-0.190	0.003
BFI-C		0.187	0.007
Gender (female)		-0.156	0.012
BFI-A		0.130	0.045
Social	0.491		
BDI		-0.494	< 0.001
Relapses		-0.302	< 0.001
BFI-N		-0.179	0.022
CGI		-0.151	0.042
Environmental	0.270		
BDI		-0.424	< 0.001
Income		0.214	0.018
Previous CBT		-0.213	0.018
G1 Question	0.321		
BDI		-0.341	< 0.001
BFI-N		-0.297	0.001
Education (years)		-0.218	0.011
G2 Question	0.226		
CGI		-0.338	< 0.001
Employment		-0.323	0.001
BDI		-0.203	0.025

ß = beta value; R^2 = adjusted root square; AOC = age at onset of comorbidity; MDD = major depressive disorder; CGI = Clinical Global Impression; BDI = Beck Depression Inventory; CBT = cognitive-behavioral therapy; BFI-A = Agreeableness; BFI-C = Conscientiousness; BFI-N = Neuroticism; G1 = general quality of life perception; G2 = general health perception.

Discussion

Our results show that our group of PD patients has "moderate" to "markedly ill" disorder severity, with lower QoL values than the average population.[33] The physical QoL domain was the most impaired. Initially, we had speculated that due to comorbid agoraphobia and depression, the social QoL domain would have the lowest mean, but the social QoL actually had the highest score. One possible explanation is that healthy Brazilian individuals have higher scores for the social domain than for other domains[33] and therefore Brazilian PD patients exhibit the same QoL pattern with lower scores.

In the current study, the lowest QoL value was observed in the physical domain, because PD symptoms may simulate other medical conditions. Notwithstanding, RS patients with severe cardiac and breathing symptoms[13] were no different from non-respiratory subtype patients. In 2009, similar results were observed in a study that was unable to correlate RS patients with the physical QoL domain, although it did report a moderate positive correlation between RS patients and the psychological QoL domain.[11] The current study could not replicate that finding, since RS was not correlated with any of the QoL domains. However, RR did have a mild positive correlation with the Psychological and Social domains.

Although current MDD diagnosis had mild to moderate correlations with almost all QoL domains, depressive symptoms (BDI) had moderate to strong associations with all QoL domains, which could indicate that the severity of symptoms was more important to QoL than the diagnosis of depression itself. The multiple linear regression analysis showed that depression symptoms were the most important factor influencing all QoL domains in PD patients, demonstrating the magnitude of the effect of depressive symptoms on QoL.

Several different personality traits were associated with QoL in PD patients. It was demonstrated that high neuroticism, low extroversion, and low conscientiousness are correlated with depressive symptoms.[34] Also, high neuroticism is correlated with anxiety and depressive disorder comorbidity.[21,35] In 2006, studies demonstrated higher mean scores for neuroticism and lower mean scores for extraversion in comorbid PD and MDD patients.[17] There is also evidence that high neuroticism scores predict poor prognosis in depressive patients,[36] although there was no data on PD patients until now. The results showed that in PD patients, BFI-N is a marker of low QoL in all four domains and the G1 question. Agreeableness and consciousness were positively associated with general, psychological, social, and environmental QoL. These findings suggest that personality traits are important factors affecting QoL in PD patients. Longitudinal studies are needed to determine the causality and prognosis of this association.

One curious finding was the negative correlation between previous CBT treatment and general, psychological, and environmental QoL domains. Since CBT is an effective treatment for PD with or without agoraphobia,[37] with lasting effects,[38] the opposite effect on QoL was expected. CBT is not widely accessible in our geographic area, and because of this only patients with severe PD have access to this treatment. In our clinical sample, previous CBT may have become a marker for patients with refractory or recurrent PD. Also, the questionnaire administered didn't ask whether patients completed the CBT treatment, only if they had started it. So, patients who didn't complete a CBT treatment could have been included in the statistical analysis, leading to a distorted result.

The findings of the study show that, in PD patients, depressive symptoms are more likely to impact QoL domains than the PD symptoms themselves. Clinicians must be aware of the presence of depressive symptoms (including subclinical depression), rather than only focusing on PD or panic attacks, and treat them incisively, since they can impair these patients' QoL.

One of the main limitations of the current study was the lack of a control group with healthy individuals, which would have allowed us to compare the impact of PD on QoL. Additionally, there are many severe cases in our sample, with more than half of patients with a history of recurrence, and severity and chronicity could also have an impact on QoL. Finally, the neuroticism personality trait can sometimes be mistaken for depression symptoms, thus it is a current possible cause that both are strongly associated with worse QoL.

Conclusion

Symptoms of depression, anxiety, and panic have a significant negative impact on the QoL of PD patients. Personality traits, especially neuroticism, may also influence QoL in these patients. Depressive symptoms seem to have stronger associations with QoL impairment. Longitudinal studies are needed to better understand the causality and prognosis of QoL in PD patients.

Disclosure

No conflicts of interest declared concerning the publication of this article.

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