

# Neuroticism and Extraversion: Contributions to Diagnosis of Dysthymia

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## Abstract

Dysthymic disorder can be characterized as a mild depression and persistent, lasting at least two years. Are described the symptoms more experienced on the subjective plane than objective? Mild neurovegetative symptom with long duration is the most frequent symptom experienced by the patients and is the landmark to differential diagnosis. It is interesting to investigate the relationship of these factors in the configuration of personality of the dysthymic. Starting from the assumption that the disorder is more experienced in the subjective level and perceived by the subject as an intrinsic part of their way of being, a model based on the configuration of these personality dimensions could contribute to a more reliable diagnosis. The present study aimed to investigate the configuration of Neuroticism and Extraversion factors in patients diagnosed with dysthymia. Participants, n = 568, 59.2% women and 40.8% men, mean age = 25 years, SD = 7.0. Results and Discussion, the studies 1 and 2 suggest the possibility the dysthymia be evaluated based on personality characteristics, revealing that this framework affects the character of the subject, or which is in itself an even psychological concept, because it is personality tendency. This assumption is based on the fact that patients with dysthymia have higher scores on neuroticism and lower extraversion because of the control group.

## Keywords

Psychological Assessment, Depression Disorders, Personality, Psychodiagnostic

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## 1. Introduction

Dysthymic disorder can be characterized as a mild and persistent depression, lasting at least two years. Until

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now, the naming has been debated because the fifth edition of the [DSM-5 \(2013\)](#) changed the term Dysthymic Disorder to persistent or chronic depressive disorder. This change is related to the controversy around this pathology, which requires further study for more reliable diagnostic boundaries. Regarding the symptoms, it may be noted that these are perceived by the subject as part of his personality, in other words, are experienced in an egosyntonic way, making the search for professional help also limited by the nature of the disorder. This way of being maladaptive has a severe interpersonal problems and a considerable decrease in the level of quality of life of these patients ([Orsini & Ribeiro, 2012](#)). Characteristically, these patients are described as grumpy, cranky, perfectionistic and pessimistic, and the symptoms are more experienced on the subjective plane than objective. This fewer neurovegetative aspect of the symptoms and their long duration are the main differential landmarks between Dysthymia and Major Depressive Disorder ([Akiskal, 1978, 1983, 1999, 2001](#); [Cordás et al., 1997](#); [Spanenberg & Juruena, 2004](#); [Serretti et al, 1999](#)).

At the same time, this characteristic of symptomatology inherent in a way of being of the individual raises the question of better categorization of the disorder, currently classified as a mood disorder (Axis I, [DSM-IV-TR, 2002](#)). The question was about the possibility of a classification on the axis II, Personality Disorder, since the symptoms are not dissociated from the psychic functioning of the individual, in fact represented typical speeches of these patients, such as: “I’ve always been like that”, “I am like this” ([Spanenberg & Juruena, 2004](#)). The characteristics commonly identified in the Dysthymic Disorder also approach some theoretical models of personality in particular models linked to trait theory, started by Allport (1936, as cited by [Tróccoli, 2006](#)). The most current representative model of trait theory is the Big Five (Big 5) model of personality. This model, derived from the language, developed in an empirical way and seeks to describe characteristics or traits of normal personality. However, it has been in the clinical application and has been shown useful in describing the pathological functioning ([Orsini, 2006](#)). The five factors are commonly called Neuroticism, Extraversion, Conscientiousness, Openness and Agreeableness.

The factor Neuroticism is associated with chronic level adjustment or emotional instability. It also refers to the emotional component of personality, being more linked to pathological processes. The factor Extraversion relates to the quantity and intensity of interpersonal interactions favorite. It also relates to the activity level, need for stimulation, as well as the ability to rejoice. Conscientiousness assesses the degree of organization, planning, persistence, control and motivation to achieve goals. In turn, the factor Openness describes the need for exploratory behaviors and the recognition of the importance of experiencing new things. The last factor, “agreeableness”, reveals the interpersonal dimension, being more related to the quality of interaction, in a continuum of empathy-antagonism ([Hutz & Nunes, 2010](#)).

From this model, which consists of general common characteristics, various instruments were developed to analyze the configuration of the factors in order to draw up a profile of the subject, where each trait derived a scale. The factors are presented in a *continuum* in which the individual stands and none of its components is some kind of symptomatic stroke. However, several studies ([Widger & Trull 1992](#); [Zonderman, Herbst, Schmidt, Costa, & McCrae 1993](#)) suggest that factors Neuroticism and Extraversion are closely linked to pathological processes. According to [Orsini \(2006\)](#), these factors are related particularly to depressive states, in a dual opposite relationship: Neuroticism is negatively associated with well-being, whereas Extraversion is positively related. Furthermore, the neuroticism scales are correlated with other characteristics of depressive spectrum, such as anxiety and self-reproach ([Schultz & Schultz, 2002](#)).

[Orsini \(2006\)](#) notes in his study that even in Major Depressive Disorder, which is a well established clinical entity and bounded, there is relative stability in personality traits Neuroticism and Extraversion, both during the crisis and in its remission. Thus, it reveals that the character is an important variable, at least as regards the pathogeny of depressive symptoms. Thus, it is interesting to investigate the relationship of these factors in the configuration of personality of the dysthymic individual. Starting from the assumption that the disorder is more experienced in the subjective level and perceived by the subject as an intrinsic part of their way of being, a model based on the configuration of these personality dimensions could contribute to a more reliable diagnosis.

Given the importance and topicality, the present study aimed to investigate the configuration of Neuroticism and Extraversion factors in patients diagnosed with dysthymia. The understanding of the configuration of these two lines in operating dysthymic can broaden perspectives of understanding the disorder in a less focused only on symptom survey, and closer to the experience of patients.

## 2. Study 1—Analysis of the Dimensionality

The initial aim of this study was to analyze the dimensionality of a test of personality that presents items of extraversion and neuroticism to identify if the instrument obtained showed good internal structure, to be then analyzed the personality tendencies associated with dysthymia and its symptoms.

### 2.1. Method

#### 2.1.1. Participants

The data were collected in a sample of college students ( $n = 568$ , 59.2% women and 40.8% men, mean age = 25 years,  $SD = 7.0$ ). Most of the participants worked (55.1%) and were single (76.4%). Students were drawn from different courses and different institutions (public and private) seeking to diversify between the areas of health, human and exact. In relation to the clinical characteristics of the sample according to demographic questions in the questionnaire, it was found that 52.9% of the individuals did not even once consulted with a psychologist or psychiatrist. Moreover, 71.3% have never been in psychotherapeutic treatment and 87.6% never received psychiatric medication. The results on the best description of how the subject felt in the last days showed that 68.4% of the sample were distributed in the upper range of well-being (Tavares, 1995), wherein said most subjects feel good without large variations in mood.

#### 2.1.2. Instrument

Composed of items of Neuroticism and Extraversion subscales of the Inventory Reduced Five Personality Factors—ICFP-R (Tróccoli & Vasconcelos, 2001).

#### 2.1.3. Procedure

Were selected 568 university students from different higher education institutions (public and private), seeking a distribution between different areas (human, biological and exact). The participants signed a free and informed consent. The applications occurred in the classroom and had an average time of 20 minutes. The project was approved by the Research Ethics Committee of the Federal University of Goiás in the number 021/2009.

## 2.2. Results

We conducted a factor analysis with the extraction method of principal axes (PAF) and varimax rotation, using the statistical program SPSS (17.0). The method of factor extraction was applied to factorization for Major axes, since they chose to extract the amount of error variance of the items. More specifically, we wanted to identify the latent dimensions in the items and do not know the amount of error in the measures (Hair, Anderson, Tatham & Black, 1995). Different factorial solutions were inspected and the solution of 2 factors proved more interpretable, the psychological point of view, explaining 42% of the total variance. The minimum load adopted, and the item could be selected, was .45. The results of this analysis are shown in **Table 1**.

The Extraversion factor contributed 25.9% to the total variance and their items are related to positive feelings, sociability and communicability, as expressed, for example, the items “loves chatting”, “cheerful keeps the environment” and “make friends with ease.” The factor Neuroticism has contributed 16.1% to the total variance and their items are related to feelings of anxiety, negative affect, and unrealistic ideas, as expressed in the items: “panics easily”; “it is tense”. The values of KMO and Bartlett’s test of sphericity provided satisfactory results suggesting the possibility of extracting factors in the correlation matrix ( $KMO = .91$ ,  $Bartlett = 6243.09$ ,  $p = .000$ ). **Figure 1** shows the Scree plot considering the observed data and randomly generated by parallel analysis. The parallel analysis assumes that the validity of the underlying factor structure should have larger eigenvalues than parallel components derived from random data with the same sample size and number of items and investigators should be interested in factors that do not account for more variance than the extracted random factors. Soon, real eigenvalues below or equal to the average random eigenvalues parallel analysis are attributable to sampling errors (Horn, 1965; Hayton, Allen, & Scarpello, 2004). For these results, we can suggest two factors are adequate to represent the items in question. A good amount of items not reached the level of .5 communalities, suggested as useful for the recovery of population factors. MacCallum, Widaman, Zhang and Hong (1999) emphasize that when communalities are low, the role of sample size and “over determination” (six or seven indicators per factor and a low number of factors) are important factors in the recovery of the population. The

**Table 1.** Factor loadings, the amount of variance explained and eigenvalues for the factors obtained by factor analysis with varimax rotation.

	Factor		h2
	Extroversão	Neuroticismo	
Loves chat	.707		.660
Maintains the cheerful atmosphere	.694		.611
Radiates joy	.682		.598
Enthuses who is around	.681		.652
Makes friends easily	.675		.566
Remains isolated from other	-.662		.605
Pulls with people chat	.640		.484
Feels good around other	.634		.440
Very amusing	.623		.461
Prefers to be alone	-.612		.519
Evita company	-.586		.601
It is full of energy	.562		.394
Keeps others at a distance	-.550		.439
Finds time to chat	.519		.447
Loves large parties	.518		.321
It is generally shy, inhibited	-.470		.366
Encourages people	.469		.317
Keeps a cool head		.741	.582
Panics easily		-.694	.529
Is relaxed, handles stress well with		.689	.582
Remains calm in tense situations		.681	.508
It's tense		-.640	.536
Gets nervous easily		-.620	.409
Well stand the stress		.599	.415
Is emotionally stable, not easily alter		.593	.434
Control your emotions		.590	.428
Cries easily		-.512	.304
Worry too much about everything		-.478	.409
Can tune the problems		.473	.310
Afraid of the worst from happening		-.467	.383
% of Variance	25,886	16,099	
Eigenvalues	7766	4830	

point .5 is a good index for achieving this. When commonalities are consistently below this value (the case of this study) to ensure a good recovery of population factors, the over determination of factors and large samples (over 100 subjects) are required. In this study, the structure identified three factors with at least 7 indicators in each factor and the sample size was above 100, fulfilling the criterion [MacCallum and colleagues \(1999\)](#), suggesting the possibility of a good estimation of population factors.

### 3. Study 2—Pre-Post Test Comparison of Neuroticism and Extraversion in Dysthymic Patients and Comparison with College Students

After study the test dimensionality we studied the possibility of these dimensions being modified with brief therapy intervention. If no significant changes occurred, then these symptoms would be resistant to changes and we could accumulate another evidence for the hypothesis that such characteristics are associated with personality factors. Also, we posed that college students would have lower scores than dysthymic patients, confirming that

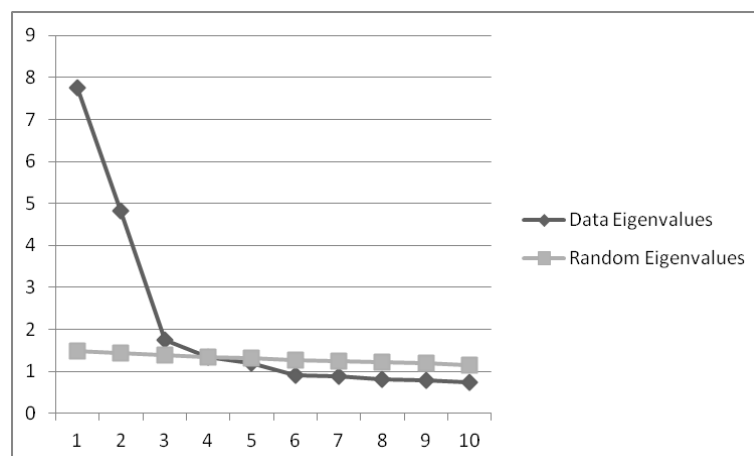


Figure 1. Scree plot with parallel analysis results of random eigenvalues.

some of these personality characteristics are associated with this diagnosis. It is expected that the patients show higher scores for neuroticism and lower in extraversion compared to the group of students. This time, it will proceed to the comparison of the scores of patients at two different times, checking if there are major changes in the personality of those associated with the diagnosis. It is expected that the personality changes are not relevant, which would confirm the fact that dysthymia was more strongly associated with personality tendencies of the subjects that are hardly modifiable and demand more investment in a longer period of therapy.

### 3.1. Method

#### 3.1.1. Participants

##### 1) Experimental group

This second study involved 22 subjects diagnosed with dysthymia, or double-depression by a psychiatrist and were submitted to psychotherapy after screening at a clinic in a large city in the state of Goiás. The mean age was 43 years ( $SD = 10.77$ ). Regarding gender and schooling, 77% were women and 40% of the sample had completed college. Of the total, about 60% working and 36% were divorced. All had already consulted with a psychiatrist as well as having been medicated ever in your life with psychotropics. Still, 40% had participated in psychotherapy sometimes and 77% were taking at the moment.

##### 2) Control group

Characterized the experimental group, we sought, in the sample used in the study 1, a group of participants with similar characteristics to this group to make comparisons as personality in order to characterize the incidence of this aspect, in fact dysthymic patients differed from patients without such a diagnosis. Thus, initially separated the subjects who had not undergone some sort of psychological treatment before, i.e., no history of mental health problems. Then we tried to equate the subjects by gender, age and education. This left 41 control subjects, college students with an average age of 45 years ( $SD = 4.33$ ) and 66% women.

#### 3.1.2. Instrument

NEX Scales: Instrument adapted for the data collection of patient samples, containing 34 items, 17 of Neuroticism and 17 of Extraversion. The instrument was punctuated in a six point likert scale, which goes from “it is all about me” to “there’s nothing to do with me”. Anamnesis: we used a semi-structured interview containing history of the current difficulties, history of psychopathology progress, personal history, family and marital.

#### 3.1.3. Procedure

We evaluated 24 patients with long-standing depression, double depression or dysthymia for two years (minimum). The NEX Scales were applied in 24 subjects in the final sample. Of these, 22 subjects did the retest the average interval of five months. The research was duly submitted to the Ethics Committee on human research and was obtained from all the patients consent, in the number 021/2009.

### 3.2. Results

Initially, we sought to examine whether there would be significant differences between the control and experimental group (patients diagnosed) on measures of extraversion and neuroticism. This analysis was done by Student's *t* test (since the measures showed normality in the analyzed group with coefficients of Skewness and Kurtosis within the expected range). This analysis is contained in **Table 2** and their results suggested that the experimental group showed a significantly higher average than the control group on extraversion and low on neuroticism, suggesting that low extraversion and high neuroticism are characteristic of dysthymic patients. This result suggests that this instrument was able to detect changes in the patients diagnosed with these personality formed, having good relationship with this external criterion.

Having made these analyzes, we proceeded to the comparison test and post-test. This analysis were done by *t* test for paired samples and the results are shown in **Table 2**. In fact, there was no significant mean change in time [interval between test and post-test, experiencing a slight increase in the measure of neuroticism and extraversion sag during this time, but not statistically significant. In this sense, apparently the feature analyzed by the instrument seems to be something relatively stable. Apparently there was a slight increase in this measure [post-test]. The correlation measure of extraversion before and after the break was also high ( $r = .78, p = .000$ ) and moderate to neuroticism ( $r = .46, p = .000$ ).

### 4. Discussion

Overall, the results of studies 1 and 2 suggest the possibility dysthymia be evaluated based on personality characteristics, revealing that this framework or affects the character of the subject, or which is in itself an even psychological concept, because it is personality tendency. This assumption is based on the fact that patients with dysthymia have higher scores on neuroticism and lower in extraversion. The definition of the personality trait comes as a fairly stable trend of the person and resistant to change as is the case in personality disorders mentioned. It is clear that studies with larger samples of patients could be made, as well as long-term monitoring, to identify changes in those characteristics. Nevertheless, on the one hand, the results of this research show that the instrument is useful as a diagnostic aid for dysthymia, as is observed that this way of being—characterized by personality traits Neuroticism and Extraversion—provides a level of understanding of patient who can go beyond the pure description of symptoms and capture more precisely the traits that characterize a run apparently typical dysthymic patients. This focus can broaden the understanding of the disorder, in addition to subsidies more contextualized for therapeutic interventions.

We chose the approach that tries to understand the characteristics of Dysthymia not like symptoms, but as a malladjusted functioning that brings suffering to the person. Thus, dysthymia could be seen as a personality problem qualitatively distinct, but closely related to Major Depressive Disorder, once the existence of the first commonly leads to the future development of a depressive crisis—a phenomenon commonly known as “Double Depression”. This would agree with the model “dimensional” who perceives the existence of successive graduations between normal and adapted personality to a psychiatric disorder, in contrast to the categorical model prevalent in manual classification of mental disorders. According to [Moreno and Moreno \(2009\)](#), a large volume of studies in the last decade has favored the dimensional model (or spectral) in the study of mood disorders.

**Table 2.** Statistics for neuroticism and extraversion factors in the control group and experimental and pre and post test.

Comparison control and experimental						
	Grup	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Extraversion	Dysthymic	15.8444	10.99784	3.460	65	.001
	Control	24.0000	7.97141			
Neuroticism	Dysthymic	2.3636	5.65303	-2.483	64	.016
	Control	-2.0227	7.24806			
Comparison pre-post						
Pair 1	Extraversion pre	1.17416	22	.700	21	.491
	Extraversion post	.96567	22			
Pair 2	Neuroticism pre	.68711	22	-.443	21	.662
	Neuroticism post	.91228	22			



Therefore, instead of following the dichotomy of humor versus personality, dysthymic disorder would be rearranged in a continuum, according to the personality traits associated with the characteristic mode of the disorder operation. Thus, dysthymia be represented primarily by these two large model TLCs: Neuroticism and extroversion. Explain dysthymia through personality characteristics correlated to operation typical of the disorder is not only a return to old questions, proposals and has previously questioned, but, moreover, would think of the disorder in a more integrated with different aspects life of the individual who suffers.

The change in the evaluation process of this diagnosis not only helps patients who suffer from this disease, but also the understanding that his family would have on the nature of the suffering of these and possible ways of improving interpersonal relationships in the family. Another change would be to focus treatment in secondary care, which would imply a diagnosis and early treatment, because nowadays the treatment of dysthymia is characterized by chronic character, as a tertiary health care. If certain personality traits are detected from childhood and adolescence, the treatment could be characterized in a clinical model (secondary health care). This discussion becomes relevant at the time, both in view of the recent publication of DSM-V, as the elaborations in progress for the future edition of ICD-11. In general, it is important to draw a distinction between a psychological construct (dysthymia) and another that is a doctor (depression as illness). What is observed is that the mere distinction between duration and severity of symptoms seems to be insufficient in defining diagnosis of dysthymia.

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