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Original article

# Psychopathology and personality traits in psychotic patients and their first-degree relatives

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**Abstract**

Personality dimensions have been associated with symptoms dimensions in schizophrenic patients (SP). In this paper we study the relationships between symptoms of functional psychoses and personality dimensions in SP and their first-degree relatives (SR), in other psychotic patients (PP) and their first-degree relatives (PR), and in healthy controls in order to evaluate the possible clinical dimensionality of these disorders. Twenty-nine SP, 29 SR, 18 PP, 18 PR and 188 controls were assessed using the temperament and character inventory (TCI-R). Current symptoms were evaluated with positive and negative syndrome scale (PANSS) using the five-factor model described previously (positive [PF], negative [NF], disorganized [DF], excitement [EF] and anxiety/depression [ADF]). Our TCI-R results showed that patients had different personality dimensions from the control group, but in relatives, these scores were not different from controls. With regard to symptomatology, we highlight the relations observed between harm avoidance (HA) and PANSS NF, and between self-transcendence (ST) and PANSS PF. From a personality traits-genetic factors point of view, schizophrenia and other psychosis may be initially differentiated by temperamental traits such as HA. The so-called characterial traits like ST would be associated with the appearance of psychotic symptoms.


*Keywords:* Schizophrenia; Psychosis; Temperament; Character; Personality; Symptoms

## 1. Introduction

The study of basic features of personality can be a useful method for establishing a possible continuum between mental disorders and behaviours that can be more or less adaptative. In this sense, psychopathology and personality interactions constitute an interesting issue in the psychoses field.

Combined analysis of psychopathology and personality can increase our understanding of the risk factors that interact in the onset of psychoses. For example, a high Novelty Seeking (NS) person can have a trend for new experiences with drugs [35,59], and some drugs are well-known psychosis triggers [7]. Personality can also interact in the expression of the disorder, for example, patients with high scores of harm avoidance (HA) may be more prone to present affective-like psychotic symptoms [51].

Different personality patterns in psychotic patients (PP) may be associated with onset of the disorder and persist during its course [5,31,55] and have been related to symptom dimensions [23,37,47]. However, the possible relations between personality dimensions and psychopathological or categorical levels (schizophrenia versus other psychosis) have not yet been explained. Schizophrenia has been associated with dimensions such as extraversion, psychoticism and neuroticism [37]. The latter has been identified as a risk factor for this disorder [5]. Numerous studies have studied the relation of personality and psychotic disorder by different scales [2,8,23,27]. Biologically, personality traits and psychotic symptoms may be related by pathophysiological mechanisms at a neurotransmitter level [62]. Also, personality has been associated with neuroimaging issues, and especially with areas such as the anterior cingulate gyrus [45], which is implicated in serotonin-modulated

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behavioural inhibition systems, and with genes and genetic markers like COMT [15,52].

For personality assessment, Cloninger et al. developed a seven-factor model [11–13] in his temperament and character inventory (TCI-R) tool [9]. This model has implications for the conceptualization of mental disorders since it allows the neuromodulation bases that lie beneath the personality variables to be analyzed and, depending on the scales, the symptoms and subtypes of personality disorders to be differentiated [3,53]. However, we do not know if the model can differentiate between clinical syndromes.

In PP, studies following this model reflect higher HA and ST scores [23,49,50,54,59] and lower reward dependence (RD) and self-directedness (SD) scores [23,47,49,59], than controls. Strakowski et al. [51], reported a correlation between HA and depressive symptoms in a sample of first episode PP. In schizophrenic patients (SP), Guillem et al. [23], found that psychotic dimension correlated with most of Cloninger's characterial dimensions; however, the study is not clear when it suggests that negative and disorganized dimensions of schizophrenia are related with Cloninger's temperamental dimensions. Smith et al. [49], found psychotic symptoms positively correlated with ST in patients with schizophrenia. Also in schizophrenia, Ritsner and Susser [47] found that RD seemed to be a psychopathology state dependent marker, while HA and NS dimensions were trait markers for schizophrenia. On the contrary, in other studies [3,53] cluster a personality disorders have been related with low RD scores. Therefore, there are still many controversies and contradictory results on whether any specific TCI-R dimension may be a trait marker for schizophrenia and/or be associated with symptomatic dimensions.

On the other hand, studies in first-degree relatives of schizophrenic patients (SR) have gained new impulse with the recovery of the schizotaxia concept [57] formulated by Meehl 40 years ago [40,41]. It is currently accepted that schizophrenia is more frequent among the relatives of patients affected by the disorder than in the general population [22] and that schizotypal traits are more frequent in SR [18,30,39]. SR present more negative symptoms than positive ones [56,58]. When studying personality traits, Kendler et al., [29], found that relatives of schizophrenic subjects were more socially isolated and exhibited more magical thinking than controls traits. Latest studies, [21] found that SR were less RD, Cooperative (C) and SD than normal controls, while others [6], reported higher HA and self-transcendence (ST) scores than the control group among relatives with schizotypal features. More recently, Smith et al., [49], found that SR were more HA, C and ST than controls, and reported relations between HA and negative symptoms, and ST with positive symptoms, in non-psychotic siblings. So conclusions are not clear, and in this sense a study of personality and symptoms in SR and first-degree relatives of other psychosis patients (PR) can also provide clues for the evaluation of schizotaxia as a real clinical entity.

One of the main difficulties in studying these disorders is the variability and complexity of their clinical manifestations. Researchers who think that negative and positive syndromes may not be sufficient to explain psychopathology of schizophrenia have tried to understand the complexity and heterogeneity of schizophrenia by making factorial analyses derived from tools such as positive and negative syndrome scale (PANSS) [17,28,43]. Although the PANSS scale traditionally evaluates two dimensions, the positive (PF) and negative (NF), a five-factor model (PF, NF, disorganized [DF], excited [EF] and depression/anxiety factors [ADF]) has been supported by several authors and studies [4,16,20,33,34,36].

In this article we study if personality dimensions are related to the expression of symptoms in psychosis; and that this correlation could run in families. We hypothesize similar correlations between personality and symptoms in patients and family groups, but not in controls. Therefore, we study the relationships between symptoms of functional psychoses measured by PANSS scale and personality dimensions in patients, first-degree relatives and healthy controls in order to evaluate the possible clinical dimensionality of these disorders. We also evaluate whether these relationships are different in schizophrenia patients from those in other non-schizophrenic psychosis, studying the correlations in both subgroups of patients and in their relatives.

## 2. Materials and methods

### 2.1. Sample

All subjects were recruited as part of a broader Schizophrenia and Other Psychosis Family Study which investigated phenotypes and genotypes of functional psychosis. Patients were recruited in the Acute Unit of the HPU Institut Pere Mata of Reus (Spain). They were included after being diagnosed in the group of non-organic psychotic disorders by the shedules for clinical assessment in neuropsychiatry interview (SCAN, Spanish version) [61] according to the DSM-IV criteria [1]. Subjects were excluded if they were under 18 years of age, if they had an organic disorder, toxic psychosis, cognitive damage, low IQ measured by WAIS-III, or if there were any medical contraindications. We eliminated eight relatives who satisfied the criteria for a psychotic disorder.

To configure the patient-relative sample and to avoid analysing repetitive measures, we selected just one relative per evaluated patient, giving priority to the siblings, then to the parents and in last place the children, leaving a sample of 47 patients. Of these, 29 had a schizophrenic disorder (Paranoid 58.6%, residual 34.5%, undifferentiated 6.9%), and 18 had non-organic psychotic disorder (Delusional disorder 22.2%, bipolar disorder 5.6%, psychotic disorder NOS 72.2%). Most of the psychotic disorders NOS presented symptoms of delusional spectrum but did not meet the duration criteria for schizophrenia or delusional disorder. Relatives were enrolled while the patients were admitted. Of these, 53.2% were siblings, 44.7% parents and 2.1% were children. According to the diagnostic criteria, the final sample included 29 SP, 29 SR, 18 PP, 18 PR, and 29 healthy controls (CG1) with no familiar history of psychotic illness. We asked participants about presence of psychosis in first-degree relatives particularly in