

# Verbal memory, negative symptomatology and prediction of psychosocial functioning in schizophrenia

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## Abstract

Negative symptomatology and neurocognitive variables have been considered good predictors of functional outcome in schizophrenia. Specifically, secondary verbal memory has been proposed to be one of the main predictors of psychosocial functioning. In this study, negative symptoms and memory performance were analyzed for associations with psychosocial function. Linear regression methods were used to analyze the value of verbal memory and negative symptomatology as predictors of everyday life skills in a sample of 29 DSM-IV schizophrenia outpatients with predominant negative symptoms. We also took into account the role of gender in the analyses. Secondary verbal memory was found to explain 40% of the variance in psychosocial functioning, independently of gender, whereas the negative symptoms predicted 26%. When both variables were combined, the explained variance was about 49%. These results support the hypothesis that cognitive variables are better predictors than symptomatology. Finally, secondary verbal memory is a good predictor of psychosocial functioning in chronic schizophrenia with predominant negative symptomatology.

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## 1. Introduction

Psychosocial dysfunction is one of the main consequences of schizophrenia, especially in its chronic residual form, and has a significant negative impact on the quality of life of both patients and their families. Chronic symptoms and chronic cognitive impairments are reported to be the strongest predictors of psychosocial functioning. Among chronic symptoms, negative symptoms are most strongly related to measures of psychosocial

functioning, and they have a higher predictive value than positive symptomatology (Addington et al., 2003) and disorganization symptoms (Ho et al., 2004). For their part, chronic cognitive impairments have been reported by several authors to be powerful predictors of psychosocial functioning in schizophrenia (Green et al., 2004; Green, 1996; Velligan et al., 1997, 2000), with a higher predictive value than negative symptomatology. In a review of 17 studies, Green (1996) concluded that mid-term or secondary verbal memory was the variable that correlated most strongly with psychosocial functioning, specifically with global functioning in community and everyday activities, the resolution of social problems, and the acquisition of social skills. This hypothesis has

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received strong empirical support (Green et al., 2000; Velligan et al., 2000; Penadés et al., 2001; McDermid and Heinrichs, 2002; Fujii and Wylie, 2002).

However, these results have not been replicated in all studies (Norman et al., 1999; Suslow et al., 2000). Velligan et al. (2000) suggested that some research may have overestimated the relation between psychosocial functioning and neurocognitive function by performing multiple comparisons without introducing statistical corrections as a function of the number of tests performed. Norman et al. (1999) stressed the importance of assessing patients in the absence of acute symptomatology, and of taking previous clinical and cognitive characteristics into account in comparisons between groups. There is a clear need for comparative studies of psychosocial dysfunction in clinically stable schizophrenic samples who have received optimal treatment. Therefore, the influence of chronic symptoms and chronic cognitive impairments will be taken into account in the present study. It is also important for comparative studies to be carried out in the same group of subjects. Accordingly, we will study the relation of psychosocial functioning with cognitive and clinical aspects in a homogeneous sample of patients with chronic negative schizophrenia.

The effect of sex-related differences in studies has been reviewed by Leung and Chue (2000). They conclude that the effects of cognitive factors on social competence differ according to sex, and suggest that when a cognitive deficit exists it has a greater impact on women than on men.

The purpose of this study was to examine the relationship between verbal memory, negative symptomatology and psychosocial functioning in the same group of symptomatically stable schizophrenia patients who had received standard pharmacological treatment. To this end, we compared the predictive capacity of verbal memory and negative symptoms on psychosocial functioning in a consecutive outpatient sample with standard instruments. We expected that the secondary verbal memory score would be better predictor of psychosocial functioning and would have higher predictive capacity than negative symptomatology. Finally, we explored whether sex would act as a covariable modulating the impact of verbal memory on psychosocial functioning.

## 2. Methods

### 2.1. Subjects

The subjects were consecutively selected from the population of schizophrenia outpatients at a community mental health unit in Barcelona, Spain. Inclusion criteria

were as follows: (a) diagnosis of schizophrenia (DSM-IV), (b) no exacerbation of psychotic clinical symptoms in the past 2 months, (c) optimal, stable pharmacological treatment in the past 2 months, (d) no drug dependence or abuse for at least the past 2 months, (e) no history of organic brain damage and (f) normal or above average general intelligence.

The sample comprised 29 subjects who met the inclusion criteria and gave informed consent to participate in the study. None were excluded because of a general intelligence level below 85 (score below 40 on the vocabulary subtest of the WAIS-III) (Wechsler, 2001). The mean age of the sample (44.8% women) was 35.2 (S.D. = 9.2). Most participants lived with their families at the time of the study (72.4%). Only 13.8% were living with a partner. Educational level was intermediate 9–13 years of schooling) in 51.7%, and 30% were working at the time of the assessment. The mean age of onset was 22.6 years (S.D. = 2.6), and the mean duration of illness was 12.9 years (S.D. = 8.2). The mean number of lifetime admissions was 2.3 (S.D. = 2.6), and the mean time since last admission was 6.4 years (S.D. = 6.6). A large majority of subjects presented a prevalence of negative symptoms (89.7%), and the remaining 10.3% presented an equal prevalence of positive and negative symptomatology. The medication breakdown was as follows: 75.9% of patients were receiving atypical neuroleptic agents and 51.7% were also receiving other medications (antidepressant agents 24.1%; anxiolytics 31%; anticholinergic agents 13.8%). Means and standard deviations for symptomatology, neurocognition and psychosocial functioning in the total sample are shown in Table 1.

### 2.2. Measures

#### 2.2.1. Psychopathology

The degree of psychopathology was assessed using the Spanish version (Peralta and Cuesta, 1994) of the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987). The psychometric properties of the Spanish translation are similar to those obtained by Kay's group in the original version (Kay and Sevy, 1990). A high concurrent validity of the PANSS has also been found in relation to the SAPS/SANS in Spanish schizophrenic patients (Peralta and Cuesta, 1994). The symptoms were assessed through a semi-structured interview administered to the patients and their families referring to the month before evaluation. The interviews were carried out by interviewers trained in the administration of the scale. The PANSS comprises 30 items distributed in three scales: positive (PANSS-P), negative (PANSS-N) and general psychopathology (PANSS-G). It classifies

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