Predictive validity of the Scale of Prodromal Symptoms (SOPS)

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Introduction. We conduct an exploratory factor analysis with the Scale of Prodromal Symptoms (SOPS) items, to determine its psychometric characteristics and construct validity, as well as to analyze criterion or predictive validity of its clinical subscales in the conversion of high mental risk subjects from prodrome to psychosis in a 1 year follow-up period.

Method. The subjects were 30 patients referred for evaluation with the Structured Interview of Prodromal Syndromes (SIPS), which includes the SOPS, because of a suspected psychosis prodromal syndrome, a factor analysis with varimax rotation was carried out: Cronbach internal coherence indices were obtained, and predictive validity of the subscales comprising this instrument were analyzed using logistic regression.

Results. Three first-order factors were found, one of them was a homogeneous component made up of negative symptoms, consistent with previous studies, and higher scores were observed in negative disorganized and general symptoms in males. Cronbach's alpha indices were 0.880 in the recruitment phase of risk patients, and 0.952 one year later. With an incidence rate of psychosis of 26.67 % in the sample studied, during the 1 year follow-up period, an excellent positive predictive value of the SOPS subscales was found, with negative symptoms having the best specificity (95.5 %) and sensitivity (100 %) indices.

Conclusions. Diagnostic criteria based on the SIPS/SOPS make it possible to identify persons at high risk of psychosis, and to make an accurate prediction of medium term psychotic episodes. It is a valid, economical and easy to use instrument in primary health care systems.

Key words:
Psychoses. Prevention. Early detection. Prodromic signs.

Actas Esp Psiquiatr 2006;34(4):216-223

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Validez predictiva de la escala de síntomas prodrómicos (SOPS)

Introducción. Se realiza un análisis factorial exploratorio de los ítems de la escala de síntomas prodrómicos (SOPS) para conocer sus propiedades psicométricas y su validez de constructo, así como para la validez de criterio o predictiva de las subescalas clínicas de la SOPS en la transición desde el estado prodrómico a la psicosis de los sujetos de riesgo durante el seguimiento de 1 año.

Método. A partir de la administración de la entrevista estructurada de síndromes prodrómicos (SIPS), que incluye la SOPS, a 30 pacientes remitidos para evaluación por la sospecha de presentar signos prodrómicos de psicosis se realizó un análisis factorial con rotación varimáx, se obtuvieron índices de Cronbach de coherencia interna y se analizó, mediante regresión logística, la validez predictiva de las subescalas que componen este instrumento.

Resultados. Se obtuvieron tres factores de primer orden, siendo el más homogéneo y coincidente con investigaciones anteriores el que incluye los síntomas negativos, y se observaron niveles más altos en los síntomas negativos, de desorganización y generales en los varones. Los índices α de Cronbach de la escala fueron 0,880 en la fase de captación de los pacientes de riesgo y 0,952 un año después. Con una tasa de incidencia de psicosis del 26,67 % en la muestra estudiada durante el seguimiento de 1 año se comprobó que las subescalas de la SOPS presentaron excelente valor predictivo positivo, siendo los síntomas negativos los que mostraron mejores índices de especificidad (95,5 %) y de sensibilidad (100 %).

Conclusiones. Los criterios diagnósticos basados en la SIPS/SOPS permiten identificar a las personas de alto riesgo de psicosis y predecir con bastante precisión la aparición de episodios psicóticos a medio plazo, siendo un instrumento válido, económico y de fácil utilización en sistemas sanitarios de atención primaria.

Palabras clave:
Psicosis. Prevención. Detección temprana. Signos prodrómicos.

INTRODUCTION

Research on predisposition to psychosis and especially on early detection of neurocognitive markers and vulnerability behaviors to psychosis as well as the development of programs for primary prevention of this spectrum of disorders is in a culminating moment in the international panorama[1-11].

Detection and specialized early treatment of psychosis have become an area of therapeutic intervention having great clinical and practical relevance in the last decade as delay in treatment onset has been associated with significant negative consequences, such as increase of comorbidity (depression, toxic consumption), cognitive, social and family deterioration, subsequent slower and incomplete recovery and poor middle and long term prognosis[12,13].

From the new paradigm of early intervention in psychosis, the idea that adequate care in prodromic and initial phases of the disorder may improve future course and outcome decreasing subjective and functional incapacity and reducing care costs, is promoted. Early intervention in psychosis includes three basic axes: rapid detection of the disorder, implementation of treatment in the earliest possible stage and adaptation of the intervention to this disorder phase[14].

One of the procedures used to detect predisposition to psychosis has consisted in measuring, in the general population, frequency and intensity of the same signs and symptoms observed in clinical cases of psychosis, although attenuated, beginning with the supposition that the experience of these symptoms does not necessarily mean the presence of the disorder. Another procedure has consisted in measuring the expression of the predisposition trait, assuming that the sub-clinical levels of the psychopathological continuum correspond to prepsychotic personality traits, for example «schizotypal», or to certain defects in specific cognitive functions that explain the appearance of abnormalities in the processing of complex information and, finally, in «common sense». Both procedures correspond to the clinical (whose objective is to anticipate the identification or the prodromic symptoms) and high risk (focused on the prospective study of vulnerability markers) lines of investigation, respectively. Both research lines try to respond to the following questions with different methods: How far is it necessary to look to identify predisposition to psychosis? To the subclinical levels of psychotic signs and symptoms (supposedly, distal indicators, regarding the disorder etiology) or to the resulting deficits of disturbances in neural circuits or in neurodevelopment (that is, marker indicators closest to the causes)?

The «prodromic syndrome» of psychosis construct is supported by the supposition of dimensionality of psychopathology and is, to a certain degree, analogous to other concepts of the schizophrenic spectrum that are also used with the same objective, as schizotypy or schizotaxia. It indicates the presence of similar symptoms, although these are milder than those of a frank psychosis. However, on the other hand, they have a recent origin and have climbed up the seriousness level instead of being stable and lasting.

The prodromic research team PRIME of the University of Yale (USA)[15,16], following a clinical methodology, has developed two instruments with the purpose of evaluating the three prodromic syndromes of psychosis described by the Australia group[17] in a cross-sectional and longitudinal way: a) positive symptoms of brief and intermittent psychoses, that do not adjust to the diagnosis of frank psychosis; b) attenuated positive symptoms, and c) functional deterioration associated to genetic risk. The instruments created for this were the Structured Interview for Prodromal Syndromes (SIPS)[18,19] and the Scale of Prodromal Symptoms (SOPS)[20]. The SIPS includes the SOPS, DSM-IV criteria for Schizotypal Personality Disorder[21], a questionnaire on family background[22] and a version of the GAF scale (Global Assessment of Functioning)[23]. The SIPS also includes operational definitions to determine the presence of both the three mentioned prodromic syndromes (Criteria of Prodromal Syndromes, COPS) as well as onset psychosis (Presence of Psychotic Syndrome, POPS). Consequently, the SOPS is a procedure of numeric translation or quantitative synthesis of the symptoms examined by the SIPS.

The SIPS/SOPS have shown high inter-rater reliability and high predictive validity, obtaining kappa values between 0.71 and 1.00 after a short training program in regards to the differentiation of prodromic and non-prodromic patients in samples that have shown a conversion index to psychosis of 46% for patients with prodromic signs in the following 6 months and of 54% at the end of one year. On the other hand, in regards to the prediction of risk of transition to psychosis of subjects with prodromic signs, the authors report that the SOPS scores show 100% sensitivity, 74% specificity and 50% positive predictive value at the end of 1 year and a PPV of 67% at the end of 2 years[24].

Finally, a recent study has demonstrated a factorial structure of the SOPS that includes three dimensions: a clear factor that joins the negative symptoms, a factor classified as «general» and a factor with predominance of positive symptoms[25].

In summary, the objectives of the SIPS/SOPS have been to provide a systematic measurement of the presence or absence of the three prodromic syndromes, measure the seriousness of the cross-sectionally and longitudinally prodromic symptoms and define the thresholds of the psychosis operationally. The interest of having a valid clinical instrument to detect predisposition to psychosis is supported by the hypothesis that early intervention, prior to the first appearance a psychotic episode, may alter the natural course of the disorder, either by delaying its onset or by decreasing its seriousness or, perhaps, aborting its appearance.

The SOPS consists in 19 items that are organized in themes in four subscales (positive, negative, disorganized and general symptoms) and operational definitions are used for the qualification of the symptoms. All the symptoms receive a score between 0 and 6, that correspond to the extremes of «absent» and «severe and psychotic» on the subscale of positive symptoms and of «absent» and «extreme» on the three other subscales (table 1).

Faced with the absence of studies that have supplied data on the utility of the SIPS/SOPS in Spanish and in our cultural setting, the objective of this study is to make an exploratory factorial analysis having preliminary character to know the properties of the SOPS items, the construct validity of the clinical subscales and compare the factors obtained in the prodromic phases of psychosis with those observed in schizophrenia. On the other hand, it is aimed to analyze the criterion or predictive validity of the SOPS subscales, that is, the relationship between the scores obtained with this instrument and an external criterion that defines that which is to be measured independently. In this case, it is the transition to psychosis during the 1 year follow-up from the first evaluation of the at risk subjects.

Table 1 Items that make up the SOPS

Subscales of the SOPS	Items of the SOPS
Positive symptoms	P.1. Unusual thought content/delusional ideas
	P.2. Suspicion/persecutory ideas
	P.3. Grandiosity
	P.4. Perceptive abnormalities/ hallucinations
	P.5. Disorganized communication
Negative symptoms	N.1. Social anhedonia or withdrawal
	N.2. Avolition (apathy)
	N.3. Decreased expression of emotions
	N.4. Decreased experience of emotions and self
	N.5. Impoverished thinking
	N.6. Deterioration of role functioning
Disorganization symptoms	D.1. Odd appearance and behavior
	D.2. Bizarre thinking
	D.3. Attention and concentration problems
	D.4. Personal hygiene/social skills
General symptoms	G.1. Sleep disorders
	G.2. Dysphoric mood
	G.3. Motor disorders
	G.4. Decreased tolerance to normal stress

Score: positive symp. positive: 0: absent, to 6: severe and psychotic. Negative symp. negative, disorganization and general: 0: absent, to 6: extreme.

METHOD

Subjects

The subjects enrolled in the study were the first 30 who were referred to the early intervention in psychosis program of the Area of Torrelavega-Reinosa (Cantabria) by the primary health care sites, youth consultation and other facilities of the community (of about 160,000 inhabitants) and who fulfilled the criteria of some of the previously described prodromic syndromes. Three of the patients had had a brief psychotic episode (1 also had background of psychosis in first degree family members), 25 had recently had attenuated psychotic symptoms (8 of whom also had psychotic family background) and 2 had psychotic family background and functional deterioration. However, a total of 9 patients of all the sample also had a schizotypal personality disorder. The patients referred to the program, with a history of a psychotic disorder or other disease, were not included in this study and were given appropriate treatment.

Mean age of the participants is 21.7 years (with a range of 15 to 31 years) and percentage of men was 56.7%. Eleven patients stated they occasionally consumed some type of drugs, although none had a dependency disorder. Educational background was primary education in 11 cases, secondary or vocational in 12 and university education in 7.

Procedure

The selection of the subjects was not random, but rather according to order of arrival or contact with the health care services. Twenty-two of the total sample of 30 participants were evaluated twice with an interim period between both evaluations of 1 year. During this period, cognitive behavior treatment and drug treatment in those cases requiring it were carried out. It was only possible to perform the first evaluation in eight cases, since the patients dropped-out of the program or moved. The evaluations were done individually to each patient by a psychologist, using the SIPS and other complementary scales.

Both the patient and their family were informed of the early intervention protocol and type of treatment to receive, to obtain their consent. During the follow-up period, weekly contacts were maintained during the first two months and then fortnightly.

Results

Mean value obtained in the SOPS subscales was 2.15 for the positive symptoms, 2.87 for the negative ones, 2.5 for the disorganization symptoms and 2.93 for the general ones. The descriptive statistics of the SOPS items are presented in table 2 where it can be seen that most of the mean values observed in each one of the items are equal to in-

Table 2 SOPS: descriptive statistic (first evaluation, n = 30)

Items of SOPS	Mean (SD)	Range
P.1. Unusual thought content/delusional ideas	3.40 (1.75)	0-5
P.2. Suspicion/persecutory ideas	3.50 (1.72)	0-5
P.3. Grandiosity	0.30 (0.70)	0-3
P.4. Perceptive abnormalities/hallucinations	1.70 (2.02)	0-5
P.5. Disorganized communication	1.83 (1.62)	0-5
N.1. Social anhedonia or withdrawal	3.76 (1.69)	0-6
N.2. Avolition (apathy)	3.67 (1.54)	0-6
N.3. Decreased expression of emotions	1.53 (1.65)	0-6
N.4. Decreased experience of emotions and self	2.67 (1.47)	0-6
N.5. Impoverished thinking	1.57 (1.91)	0-5
N.6. Deterioration of role functioning	4.10 (1.65)	0-6
D.1. Odd appearance and behavior	2.80 (1.58)	0-5
D.2. Bizarre thinking	3.00 (1.39)	0-5
D.3. Attention and concentration problems	2.83 (0.75)	1-4
D.4. Personal hygiene/social skills	1.37 (1.50)	0-5
G.1. Sleep disorders	2.70 (1.68)	0-5
G.2. Dysphoric mood	4.43 (0.90)	2-6
G.3. Motor disorders	0.47 (1.78)	0-3
G.4. Decreased tolerance to normal stress	4.13 (1.25)	0-6

tensity levels between 0 (absent) and 3 (moderate). Only three items had a mean value of 4 (moderately serious).

Relationship between the SOPS subscales and other endpoints

Comparisons have been established between the scores obtained in each one of the SOPS subscales and the presence or not of family background of psychosis. It was seen that the patients with a family background of psychosis scored significantly higher in the positive symptoms ($t = 2.72$; $p = 0.011$). However, the combined comparison of the four subscales between both groups did not offer significant differences (λ of Wilks = 0.810; $p = 0.243$).

Furthermore, no significant differences were observed in the four subscales of the SOPS, taking the existence or non-existence of a schizotypal personality disorder, consumption or not of drugs, or the levels of academic training as comparison. On the contrary, there were significant differences in the comparison of men and women, the men always scoring higher on the four subscales (λ of Wilks = 0.535; $p = 0.019$); the significant differences being found in the negative symptoms ($F = 4.90$; $p = 0.035$), disorganization symptoms ($F = 7.40$; $p = 0.011$) and general symptoms ($F = 5.94$, $p = 0.021$).

Factorial structure

In order to know the structure underlying the SOPS scale, an initial exploratory factorial analysis was done with the factor extraction method based on principal components. It generated 5 components with self-values greater than 1 and that explained 77.37% of the variance. Of the 19 SOPS items, 10 showed greater weight in the first component, 4 in the second one, 2 in the third and fourth components respectively and 1 in the fifth component. However, considering that each one of the fourth and fifth components represented less than 10% of the total variance, it was decided to conduct a new factorial analysis, forcing a solution of three factors, with the varimax extraction method to maximize the differences between factors. From the theoretical point of view, this methodological decision is also supported by the observation of three dimensions (psychotic, disorganized, and negative) in schizophrenia[21] and the obtaining of three factors in the mentioned factorial analysis of the SOPS[25]. The KMO sample adequacy measurement was 0.665 and the Bartlett Test of Spericity offered a chi square value of 411.031 ($p = 0.000$). This indicates that the application of the factorial analysis is appropriate.

The three factors obtained explain 63.53% of the variance (27.83%, 23.62% and 12.08%, respectively) (table 3).

Table 3 Factors of SOPS (first evaluation, n = 30)

Symptoms	Factor 1	Factor 2	Factor 3
N.1. Social anhedonia or withdrawal	**0.839**		
N.2. Avolition (apathy)	**0.854**		
N.3. Decreased expression of emotions	**0.787**	–0.356	
N.5. Impoverished thinking	**0.779**		
N.6. Deterioration of role functioning	**0.709**		
D.4. Personal hygiene/social skins	**0.654**		
N.4. Decreased experience of emotions and self	**0.581**	0.451	
G.3. Motor disorders	**0.476**		
P.1. Unusual thought content/delusional ideas		**0.891**	
P.2. Suspicion/persecutory ideas		**0.846**	
D.2. Bizarre thinking		**0.846**	
G.2. Dysphoric mood		**0.652**	
G.4. Decreased tolerance to normal stress	0.582	**0.585**	
G.1. Sleep disorders		**0.529**	
P.4. Perceptive abnormalities/hallucinations		**0.489**	
D.1. Odd appearance and behavior	0.472	**0.481**	0.476
P.5. Disorganized communication			0.772
D.3. Attention and concentration problems		0.568	**0.667**
P.3. Grandiosity			**0.662**

For greater clarity, weights less than 0.35 have been eliminated.

It can be observed that factor 1 is relatively homogeneous, as it includes the totality of the negative symptoms besides a disorganized symptom (deterioration in person hygiene and social skills) and a general symptom (motor disorders). Factor 2 is more heterogeneous and includes three positive symptoms, two disorganized symptoms and three general symptoms, while factor 3 is exclusively made up of two positive symptoms and one disorganized symptom.

These findings reveal that only factor 1, that groups the negative symptoms, has a close relationship with that observed in the symptoms of schizophrenia. Thus, there is a clear continuity from the prodromic phases to psychosis. On the other hand, the dimensions of the positive symptoms and those of cognitive disorganization described in schizophrenia do not appear in these patients with the same clarity, and can precisely constitute the characteristic that specifically marks the transition to psychosis.

Reliability and predictive power

Table 4 shows Cronbach's alpha values of each one of the SOPS subscales obtained in the first evaluation and follow-up one year later. As can be seen, adequate internal coherence between the items composing the negative symptom subscales and disorganization symptoms is verified, this being somewhat weaker in the positive symptoms and general symptoms subscales. However, all indexes offer high values when the data is re-analyzed after one year of follow-up. In the same way, the internal coherence of the SOPS items as a whole is high in both the first and second evaluation, in which maximum levels are reached.

Regarding the predictive validity of the SOPS, the potency of this instrument in the identification of the patients at risk of passing to psychosis in a one-year period has been analyzed. Considering that the incidence of psychosis in this period was 26.7%, it was verified that the SOPS was a very ideal instrument to determine who showed the greatest risk of psychotic decompensation and, especially, it was the negative and disorganized symptoms that offered the highest predictive values (table 5).

The sensitivity of the negative and disorganized symptoms reached 100% while specificity of all the subscales was, in general, very high, especially that of the negative symptoms subscale.

As is known, sensitivity reflects absence of type 1 errors (false negatives) and specificity indicates absence of type 2 errors (false positives). Unfortunately, a predictor rarely has both high sensitivity and high specificity characteristics. Thus, it is necessary to give preference to one of these two indexes according to the nature of the disorder. Thus, in lethal diseases, it is understood that it is preferable to sacrifice specificity in favor of greater sensitivity so that the greatest possible number of persons who could run the risk of dying can be identified. On the contrary, in diseases with low mortality and elevated risk of stigmatization, as occurs with psychoses, the ideal predictor should have elevated specificity.

Consequently, based on the data obtained, it can be verified that SOPS gathers good conditions for its use in clinical prediction as it permits a reasonable identification of persons with elevated vulnerability to psychosis. However, unfortunately, based on the clinical predictors that we presently use, there may be a certain proportion of persons identified as «positive» who will never develop psychosis. This disadvantage should be compensated with the important benefits that should be derived from the early intervention.

DISCUSSION

Early detection and intervention in psychosis differs from the usual procedure of «waiting to see», as it is a structured strategy and aimed at determining the existence of the disorder, exactly at its onset. The published studies significantly relate the reduction of the period in which onset

Table 4 Analysis of reliability of the SOPS (Cronbach's alpha values)

Scales	1st evaluation (n = 30)	2nd evaluation (n = 22)
Positive symptoms	0.539	0.739
Negative symptoms	0.875	0.927
Disorganized symptoms	0.711	0.853
General symptoms	0.574	0.738
Total scales of SOPS	0.880	0.952

Table 5 SOPS: prediction of transition to psychosis (n = 30)

Scales	Sensitivity	Specificity	Positive predictive value
Positive symptoms	75%	90.9%	86.7%
Negative symptoms	100%	95.5%	96.7%
Disorganized symptoms	100%	86.4%	90%
General symptoms	75%	90.9%	86.7%
Total scales of SOPS	75%	90.9%	86.7%

Incidence at 1 year: 26.7 %.

psychotic symptoms were untreated with a shorter active psychosis phase, a less serious disorder and the development of less chronicity. Following this same logic, it is also believed that detection of risk in the prodromic phase and rigorous monitoring could produce similar benefits or even more powerful ones than the reduction of untreated psychosis in the post-onset phase[1].

However, the main disadvantages that may be presented by the early detection programs of psychosis are the existence of type 2 diagnostic errors (false positives) and type 1 errors (false negatives). The rate of false positives expected in the identification of these cases tends to vary inversely with age while, for example, the natural rate of false negatives in schizophrenic psychoses may reach up to 25% because not all the cases occur after a clear prodromic phase[26].

A change of paradigm on the prodromic detection and intervention was catalyzed by Yung et al. when he mentioned the three criteria for high risk of the prodromic phase (brief intermittent psychotic state, attenuated positive symptom state or genetic risk and functional deterioration state[27]. Different investigations conducted in Australia, USA and Norway have verified that individuals who fulfill any of these criteria have a transition rate to psychosis in the period of one year between 21%-54%[1].

In order to operatively identify these high-risk conditions, the University of Yale group (New Haven, CT) developed the SIPS/SOPS instruments and an early intervention program known as PRIME (Prevention through Risk Identification, Management and Education). The predictive validity of these instruments revealed that the likelihood of conversion to psychosis of the persons classified as prodromics (SIPS+) in the period of 1 year reached up to 54% versus the rates close to 0% in those who did not show these characteristics (SIPS-)[19,24].

Our results have revealed that the psychometric properties of the scale are acceptable, considering the global indexes of internal coherence in the scale items obtained in the first evaluation of the sample data and especially in the second evaluation after the 1-year follow-up. It has also been verified that the SOPS subscales do not have a clear relationship with the presence of family backgrounds of psychosis, with the sporadic consumption of drugs or with the patients' academic levels. On the contrary, as has been stressed in the scientific literature, based on the schizotypy dimensions[28,29] and those of schizophrenia[30], the negative, disorganized and general symptoms are more intense and serious in men than in women.

In the second place, it has been seen that the mean scores in each one of the SOPS items have been somewhat higher than those obtained in the PRIME[25], and RAP programs[31]. This suggests that in our early detection and intervention program, we may be recruiting subjects at risk in prodromic phases that are somewhat closer to frank psychosis than desired. Our patients have higher scores in items such as «persecutory ideas and suspicion» and «unusual thought content and delusion ideas», among the positive symptoms; «avolition and apathy» and deterioration of role functioning, «among the negative symptoms» and «dysphoric mood» and «decreased tolerance to normal stress» among the general symptoms. This delay in the early identification may be because the patients, who first sense the disorder, do not generate direct demand for treatment. Thus it is necessary to optimize the detection of at risk subjects on the basis of more rigorous external behavior observations.

In the third place, it was verified that the factorial structure of SOPS offers three dimensions in relationship with the analyses done by Hawkins et al. However, there is only clear coincidence regarding the homogeneity of the negative symptoms dimension while the two other dimensions only partially replicate the results of said authors and are not adjusted to those observed in schizophrenia, especially due to the absence of a factor of cognitive disorganization[25]. This makes us think that this dimension, as that of the positive symptoms, emerges clearly only when the disorder has been established and stabilized.

Finally, we consider it relevant to stress the predictive validity of the SOPS, considering the elevated sensitivity and specificity indexes. According to McNeil and Cantor-Graae[32], an ideal predictor should gather three characteristics: be easily identifiable, be susceptible to intervention and not produce social stigma. On the other hand, as has been said, ideally, the number of false positives (type 2 errors) that arise from the use of the predictor should be low, that is, a predictor should have elevated specificity, although it should also have elevated sensitivity and high positive predictive value. Based on the data obtained in this study, the SIPS/SOPS is presented as an economic clinical instrument, which is valid, non-stigmatizing and easily incorporable to the standard clinical evaluation. Once again, the negative and disorganization symptoms are the criteria that reach the best positive predictive power of a subsequent psychosis and the negative symptoms that offer a relatively higher specificity. These risk profiles are optimally detected from the primary health care sites with an adequate formation of the medical practitioner.

However, the present investigation has some limitations that should not be overlooked, the most important perhaps being sample size. It is clear that these results have a preliminary character and the findings should be replicated with larger samples. Specifically, the sample size is clearly small to conduct a factorial analysis of these characteristics. Furthermore, another limitation is found in the predominance of patients who belong to the prodromic group of attenuated positive symptoms, the representation of the subgroups of patients with brief and intermittent psychotic symptoms and genetic risk plus functional deterioration being less. This advises caution when interpreting the validity of the

data. However, it is not superfluous to state that the first results published by the authors of the SIPS/SOPS were obtained with even smaller samples than that used in this study. Obviously, this is due to the difficulty of recruiting cases and conducting middle or long-term follow-up studies with patients in prodromic phases of psychosis.

In spite of these limitations, the data obtained verify a very encouraging reliability and validity of the scale and support its use in clinical setting and in future investigation for the identification of individuals susceptible to experiencing changes in prodromic symptoms.

ACKNOWLEDGEMENTS

This investigation has been made possible thanks to the grant provided by the Ministry of Science and Technology in the period of 2002-2005 (National Plan I+D+I, Ref. MCT-02-BSO-03436).

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