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Validation of the Spanish version of the Social Functioning Scale

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Introduction. Social functioning as an outcome variable in therapeutic interventions with schizophrenic patients has been a relatively neglected area. The Social Functioning Scale (SFS) may be a good instrument to evaluate different therapeutical strategies for the rehabilitation of the schizophrenic patient. The aim of this paper is to validate the Spanish version of the SFS.

Material and methods. The Spanish version of the SFS was administered to 85 patients with schizophrenia (DSM-IV), and 120 healthy volunteers (60 unemployed and 60 employed).

Results. Cronbach's alpha is between 0.69 and 0.80 in every subscale. Item-total correlations show higher internal consistency than in the validation of the original English version of the SFS. Factorial analysis suggests it could be appropriate to use a mean score from every subscale to make a total score. Discriminant analysis differentiates between patients and controls in a statistically significant way. In order to facilitate the interpretation of the results and their clinical use, a conversion of the direct scores into standardized ones was carried out.

Conclusions. Results from three samples show that the Spanish version of the Social Functioning Scale is reliable, valid, and sensitive.

Key words:
Social functioning. Scale. Schizophrenia.

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Validación en castellano de la *Social Functioning Scale* (Escala de Funcionamiento Social)

Introducción. El funcionamiento social, usado como una variable de resultado en las intervenciones terapéuticas con esquizofrénicos, ha sido un área relativamente descuidada. La Escala de Funcionamiento Social (EFS) puede ser un instrumento de gran utilidad a la hora de evaluar la eficacia de las distintas estrategias empleadas en la rehabilitación del paciente esquizofrénico. En el presente estudio se valida la versión en castellano de la EFS.

Material y métodos. Se administró la versión española de la escala a 85 sujetos esquizofrénicos (DSM-IV), 60 individuos sanos en paro y 60 sujetos sanos que trabajaban activamente en el momento de la evaluación.

Resultados. Los coeficientes alfa se muestran uniformemente elevados (entre 0,69 y 0,80). Las correlaciones entre cada ítem y el total muestran una consistencia interna superior al obtenido en la validación de la versión original inglesa. El anáilis factorial sugiere que puede ser apropiado extraer una puntuación media de todas las subescalas para dar una puntuación total. El análisis discriminante diferencia de un modo muy significativo entre el grupo de esquizofrénicos y los dos grupos control. Para facilitar el uso clínico de la escala y la interpretación de los resultados se decidió convertir las puntuaciones directas de cada subescala en puntuaciones tipificadas.

Conclusiones. Los resultados demuestran que la versión española de la *Social Functioning Scale* (SFS), la EFS, es fiable, válida y sensible.

Palabras clave:
Funcionamiento social. Escala. Esquizofrenia.

INTRODUCTION

The SFS (Social Functioning Scale) was designed in order to be able to evaluate those social functioning areas that are crucial for the maintenance of schizophrenic subjects in the community[1]. These areas include: *a)* withdrawal (time spent alone, onset of conversations, social avoidance); *b)* interpersonal behavior (number of friends, heterosexual contacts, communication quality); *c)* pro-social activities (sports, etc.); *d)* recreation (hobbies, interests, pastimes, etc.); *e)* independence-competence (capacity to have the necessary skills to carry out an independent life); *f)* independen-

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ce-performance (performance of the skills necessary to carry out an independent life), and *g)* employment/occupation (daily involvement in some productive employment in a structured program).

The SFS was designed with two main purposes. In the first place, to provide the clinician with the specific objectives that could be negotiated with the patient and his/her relatives. In the second place, synthesize a series of complex variables involved in the individual's social functioning in coherent and reliable data.

Evaluating the social and personal functioning of a subject is not an easy task. This evaluation generally requires normative judgment that can lack reliability. That is why the SFS lists several basic skills that should be indicated as present or absent, thus avoiding arbitrary decisions. The SFS also distinguishes between the lack of capacity to perform a task and not performing them.

This present study examines the reliability, validity, sensitivity and utility of the Spanish version of the SFS that its authors have performed.

MATERIAL AND METHODS

Three samples of study individuals were recruited. The first sample was made up of 85 schizophrenic subjects (DSM-IV)[2] enrolled in the Day Hospital of Vigo on admission to this facility. The second sample was formed by 60 healthy, unemployed subjects (enrolled through the INEM [National Employment Institute] office in Vigo) and the third group had 60 healthy subjects that were actively working at the time of the evaluation (recruited in the Citroen car factory of Vigo). The demographic data of the three samples can be seen in detail in table 1.

Table 1 Demographic data of the sample

	Schizophrenics	Healty unemployed subjects	Healthy actively employed subjects
Number	85	60	60
Age	39.32 ± 9.62	37.8 ± 10.28	40.45 ± 9.64
Gender			
Mean	69 (81.2 %)	50 (83.33 %)	48 (80 %)
Women	16 (18.8 %)	10 (16.66 %)	12 (20 %)
Studies			
Primary	55 (56.5 %)	24 (40 %)	40 (66.6 %)
Secondary	20 (16.5 %)	23 (38.3 %)	16 (26.6 %)
Upper	10 (4.7 %)	13 (21.7 %)	4 (6.6 %)
Setting			
Urban	81 (95.3 %)	57 (95 %)	59 (98.3 %)
Rural	4 (4.7 %)	3 (5 %)	1 (1.7 %)

RESULTS

Reliability

The results of the reliability analysis can be seen in table 2.

The alpha coefficients[3] are shown to be uniformly increased (multiplying by 100 directly expresses the percentage of the variance attributable to the «real» variance of the characteristic measured). On the other hand, because the different subscales are obtained by the sum of different items, it would be desirable for the part of the variance in response to the individual items to be determined by the characteristics that measure the scale total[4]. The correlations between each item and the total show that there is an elevated level of internal consistency in the different subscales (noticeably superior, according to our data, to that obtained in the validation of the original English version).

Validity

Tests were performed to determine the construct validity and criterion validity.

In regards to the construct validity, the question is to determine if the SFS subscales are interconnected through a common factor or construct (in this case, «social functioning»). To do so, a factorial analysis was performed according to the alpha method[5]. After the iterations, a single factor was extracted with an *eigenvalue* of 3.82 that

Table 2 Reliability and intecorrelations of the SFS

	W	IntB	Ip	Ic	Ra	Pb	Eo
Correlation item-total	0.57	0.67	0.59	0.46	0.85	0.84	0.56
Reliability: alpha	0.80	0.80	0.77	0.79	0.74	0.69	0.80
Correlation with							
W	1						
IntB	0.65	1					
Ip	0.46	0.44	1				
Ic	0.21	0.30	0.38	1			
Ra	0.45	0.53	0.50	0.35	1		
Pb	0.43	0.58	0.39	0.29	0.78	1	
Eo	0.23	0.30	0.17	0.24	0.52	0.56	1

W: withdrawal; IntB: interpersonal behavior; Ip: independence-performance; Ic: independence-competence; Ra: recreation activities; Pb: prosocial behavior; Eo: employment-occupation.

Table 3 Factorial analysis of the SFS subscales

	All the subjects (n = 205)	Schizophrenics (n = 85)	Controls (n = 120)
Withdrawal	0.71	0.58	0.75
Interpersonal behavior	0.83	0.73	0.69
Interpersonal-performance	0.70	0.63	0.54
Interpersonal-competence	0.54	0.50	0.04
Leisure time	0.85	0.71	0.69
Prosocial behavior	0.81	0.67	0.73
Employment-occupation	0.49	0.40	0.63
Eigenvalue	3.82	3.40	3.21
% variance	54.46	43.2	39.8

accounts for 54.6 % of the variance. Table 3 shows the results of the analysis for each subscale. The results obtained, together with the high intercorrelation between the different subscales, suggest that it can be appropriate to extract a mean score from all the subscales to give a total score.

The criterion validity was studied in the following way. The schizophrenic sample scores were compared with those of the healthy subject samples (table 4) due to the previous hypothesis that the schizophrenic group would have lower scores because of their incapacities and social deteriorations.

Table 4 ANOVAS of the three groups in different subscales

	Schizophrenics vs employed controls (F)	Schizophrenics vs unemployed controls (F)	Controls employed vs unemployed controls (F)
Withdrawal	76.24***	52.99***	4.38*
Interpersonal behavior	62.02***	51.90***	0.80
Independence performance	17.77***	89.49***	25.91***
Independence competence	9.79**	27.97***	9.62**
Leisure time	156.30***	95.24***	5.99*
Prosocial behavior	238.87***	125.56***	8.30**
Total	262.97***	204.63***	3.51

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 5 Conversion table of direct scores in standardized ones

Direct score	W	IntB	Ip	Ic	Ra	Pb	Eo
0	56.4	67.7	51.7	25	59.6	79	77.8
1	61.3	73.9	54.	27.3	62.4	80.6	82.6
2	66.2	80	56.3	29.7	65.1	82.3	87.4
3	71.1	86.2	58.6	32	67.9	84	92.2
4	76	92.3	60.9	34.4	70.7	85.6	97.1
5	80.9	98.5	63.2	36.7	73.5	87.3	101.9
6	85.8	104.6	65.5	39.1	76.3	89	106.7
7	90.7	110.8	67.8	41.4	79	90.6	111.5
8	95.6	116.9	70.1	43.8	81.8	92.3	116.3
9	100.5	123.1	72.4	46.1	84.6	94	121.1
10	105.4		74.7	48.5	87.4	95.6	126
11	110.3		77	50.8	90.1	97.3	130.8
12	115.2		79.3	53.3	92.9	99	135.6
13	120.1		81.6	55.6	95.7	100.6	140.4
14	125		83.9	58	98.5	102.3	145.2
15	129.9		86.2	60.2	101.2	104	150
16	134.8		88.5	62.5	104	105.6	
17	139.7		90.8	64.8	106.8	107.3	
18	144.6		93.1	67.2	109.6	109	
19	149.5		95.4	69.6	112.3	110.6	
20	154.4		97.6	71.9	115.1	112.3	
21			99.9	74.3	117.9	114	
22			102.2	76.6	120.7	115.7	
23			104.5	79	123.4	117.3	
24			106.8	81.3	126.2	119	
25			109.1	83.7	129	120.6	
26			111.4	86	131.8	122.3	
27			113.7	88.3	134.5	124	
28			116	90.7	137.3	125.6	
29			118.3	93	140.1	127.3	
30			120.6	95.4	142.9	129	
31			122.9	97.7	145.7	130.6	
32			125.2	100	148.4	132.3	
33			127.5	102.4	151.2	134	
34			129.8	104.8	154	135.7	
35			132.1	107.1	156.8	137.3	
36			134.4	109.5	159.6	139	
37			136.7	111.8	162.3	140.6	
38			139	114.2	165.1	142.3	
39			141.3	116.5	167.9	144	
40				118.9	170.7	145.7	
41				121.2	173.5	147.3	
42				123.6	176.2	149	
43				125.9		150.7	
44				128.3		152.3	
45				130.6		154	
46						155.7	
47						157.3	
48						159	
49						160.7	
50						162.4	
51						164	
52						165.7	
53						167.4	
54						169	
55						170.7	
56						172.4	
57						174	
58						175.7	
59						177.4	
60						179	
61						180.7	
62						182.4	
63						184.1	
64						185.7	
65						187.4	
66						189.1	
67						190.7	
68						192.4	
69						194.1	

W: withdrawal; IntB: interpersonal behavior; Ip: independence-performance; Ic: independence-competence; Ra: recreation activities; Pb: prosocial behavior; Eo: employment-occupation.

The results show that SFS discriminates very significantly between the schizophrenic groups and the two control groups. On the other hand, although there are no significant differences in the total score between both control groups, there are significant differences in some subscales, especially that of independence-performance, and to a lesser degree, and in this order, those of Independence-competence, Prosocial behavior, Leisure time activities and Withdrawal.

To facilitate the clinical use of the scale and the interpretation of the results, it was decided to convert the direct scores of each subscale into standardized scores, using the scores obtained in the schizophrenic subject samples as reference, so that the «standardized» mean in each subscale was equal to 100 ± 15. Table 5 shows the conversion table of direct to standardized scores.

Finally, and even though the SFS is not a diagnostic instrument, the discriminant analysis correctly places each subject in the correct group in 88.78 % of the cases (table 7).

Sensitivity

Sensitivity refers to the capacity of the scale to respond to the differences in the characteristics that are going to be measured. This is an important fact in the SFS, since it was designed to be used as a continuous measurement (not to «identify» cases, although, as has been seen, it does this well). An indirect method to evaluate the sensitivity is to study how the scores are distributed into ranges in the different study populations (table 8).

It is interesting to verify how 45.9% of the schizophrenics obtain scores below 95, while all the scores are above this value in the two groups of healthy subjects. Equally, 33.3 % of the healthy unemployed subjects and 55.3 % of the employed healthy subjects obtain scores above 156 versus 0 % of the schizophrenic subjects.

Table 6 Means and standard desviation of the standardized scores in each subscale for the three samples

	Schizophrenics	Unemployed healthy subjects	Employed healthy subjects
Withdrawal	100 (15)	116 (9)	119 (10)
Interpersonal behavior	100 (15)	115 (8)	117 (8)
Independence-performance	100 (15)	121 (10)	110 (13)
Independence-competence	100 (15)	111 (6)	107 (8)
Leisure time	100 (15)	125 (15)	131 (14)
Prosocial behavior	100 (15)	132 (19)	142 (17)
Employment-occupation	100 (15)	107 (8)	126 (1)

Table 7 Discriminant analysis of the SFS

Real group	Theorical group: No. of cases	Schizophrenics	Unemployed healthy subjects	Employed healthy subjects
Schizophrenics	85	73 (85.9 %)	10 (11.8 %)	2 (2.4 %)
Unemployed healthy subjects	60	5 (8.3 %)	51 (85 %)	4 (6.7 %)
Employed healthy subjects	60	0 (0 %)	2 (3.3 %)	58 (96.7 %)
Cases correctly grouped: 88.78 %				

DISCUSSION

The results of this study show that the spanish version of the SFS is a reliable, valid and sensitive instrument. The scale correction table that we have elaborated makes it possible to place the social functioning of each subject on a level that is easily comparable to that of other schizophrenic subjects and also to establish the rehabilitating objectives in a measurable way. The spanish version of the Social Functioning Scale measures a series of skills and behaviors pertinent to the deteriorations and characteristics of the schizophrenic patients easily and rapidly and makes it possible

Table 8 Frequency (%) of total scores of the SFS in the three samples

SFS score	Schizophrenics (n = 85)	Unemployed healthy subjects (n = 60)	Employed healthy subjects (n = 60)
45-55	1.2	0	0
56-65	1.2	0	0
66-75	11.8	0	0
76-85	15.3	0	0
86-95	16.5	0	0
96-105	15.3	1.7	1.7
106-115	17.6	1.7	0
116-125	10.6	10.0	1.7
126-135	4.7	11.7	15.0
136-145	4.7	23.3	11.7
146-155	1.2	18.3	16.7
156-165	0	15.0	26.7
166-175	0	8.3	8.3
176-185	0	8.3	18.3
186-195	0	1.7	0

to establish a «comparative» framework with appropriate reference groups.

Finally, it can be a very useful instrument when evaluating the efficacy of the different strategies used in the rehabilitation of the schizophrenic in regards to implementing their social an/or occupational reintegration.

REFERENCES

1. Birchwood M, Smith J, Cochrane R, Wetton S, Copestake S. The Social Functioning Scale. The development and validation of a new Scale of Social Adjustment for use in family intervention programmes with schizophrenic patients. Br J Psychiatry 1990; 157: 853-9.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4.ª ed. Washington: APA, 1994.
3. Guttman L. A basis for analysing test-retest reliability. Psychometrica 1945;10:255-82.
4. Cochrane R. A comparative evaluation of the symptom rating test and the Langner 22-item index for use in epidemiological surveys. Psychol Med 1980;10:115-24.
5. Harman HH. Modern factor analysis. Chicago: University Press, 1967.