Original

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Validation of the spanish version of the discrimination and stigma scale (DISC 12)

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Aims. The "Discrimination and Stigma Scale" (DISC) was the first instrument specifically designed to evaluate reported experiences of discrimination by people with mental disorders. This study aims to validate DISC-12 version in Spanish population with Schizophrenia and, as specific objectives, to do the external validation with the Self-Stigma Questionnaire (SSQ) scale and Link PDD scale and to validate their internal consistency, temporal and inter-rater reliability.

Methods. 86 individuals with schizophrenia were interviewed at two time points (between one to two weeks) by two raters. Additionally to assess their sociodemographic and clinical characteristics, following scales were administered: DISC 12, SSQ, PDD, Social Functioning Scale (SFS) and Global Assessment of Function (GAF).

Results. Internal consistency as a whole results a Cronbach α between 0.741 and 0.850. Subscales "Unfair treatment" and "Positive treatment" have a Cronbach α higher than 0.79, but the both subscales "Stopping Self" and "Overcoming stigma" do not have in themselves an adequate consistency. Test-retest reliability shows that four subscales have values higher than 0.67. Inter-rater reliability assessment result that 21 items score values above 0.8, 10 between 0.6-0.8 and one lower than 0.6. DISC-12 was significantly related with the second factor of the PDD (self-stigma) and SSQ.

Conclusions. The Spanish version of the DISC 12 scale is valid, has good internal consistency, is reliable both in terms of test-retest and inter-rater reliability and has good convergent validity with the SSQ and PDD, and the "Unfair treatment" and "Positive Treatment" subscales were the most robust of the four subscales.

Keywords: Stigma, Discrimination, Anticipate, Psychometric Properties, Measure

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Validación de la versión española de la escala de discriminación y estigma (DISC 12)

Objetivos. La "Escala de Discriminación y Estigma" (DISC) fue el primer instrumento diseñado para evaluar experiencias de discriminación referidas por pacientes con trastornos mentales. El objetivo principal de este estudio es validar la versión española de la escala DISC 12 en población con esquizofrenia y, como objetivos específicos, realizar la validación externa con el Cuestionario de Autoestigma (SSQ) y la Escala de Link (PDD) y validar su consistencia interna y la fiabilidad temporal y entre observadores.

Métodos. 86 individuos con esquizofrenia fueron entrevistados en dos tiempos (entre una y dos semanas) por dos evaluadores. Se estudiaron sus características sociodemográficas y clínicas y se aplicaron las escalas: DISC-12, SSQ, PDD, Escala de Funcionamiento Social (SFS) y Evaluación del Funcionamiento (GAF).

Resultados. La consistencia interna resultó un α Cronbach entre 0,741 y 0,850. Las subescalas "Trato injusto" y "Trato positivo" tuvieron α Cronbach superior a 0,79, pero las subescalas "Anticipación de la discriminación" y "Superación del estigma" no tuvieron adecuada consistencia. La fiabilidad test-retest de las cuatro subescalas fue superior a 0,67. La fiabilidad entre evaluadores mostró que 21 Items tuvieron puntuación superior a 0,8, 10 entre 0,6-0,8 y uno, menos de 0,6. DISC-12 se relacionó significativamente con el Segundo factor de PDD (self-stigma) y con SSQ.

Conclusiones. La versión española de la escala DISC 12 es válida, tiene una buena consistencia interna, buena fiabilidad test-retest y entre evaluadores y tiene una buena validez convergente con la SSQ y PDD. Las subescalas "Trato injusto" y "Trato positivo" son las más robustas.

Palabras clave: Estigma, Discriminación, Anticipación, Propiedades Psicométricas, Medida

INTRODUCTION

In recent years, the study of the stigma related to psychiatric disorders has seen a significant relevance due to the evidence about its negative impact on patient's health, on their disability, self-esteem and their personal and social development opportunities[1-3].

There are a variety of instruments that assess this phenomenon from different perspectives depending of implicated agents. The DISC scale, "Discrimination and Stigma Scale"[4], was the first instrument to assess the self-perceived discrimination of patients with psychiatric disorders in different relevant areas of life, in addition to other dimensions of stigma. It is based on the conceptualization of stigma as a global construct including three domains: cognitive (cognitive problems), affective (attitude problems) and behavioural (discrimination problems)[5,6].

It is relevant to have a measure of the self-perceived discrimination in different areas of daily life and social participation, since it allows us to design personalized coping strategies for patients and social strategies for the society in a general way. And also, to have the possibility to evaluate, in both cases, the impact of these strategies at individual and global level. According to the Le Bel conceptualization[7], perceived stigma is what an individual thinks most people believe about a stigmatized group, and how the individual thinks he is viewed by society as a member of that group. On the other hand, Corrigan and Watson[8] define public stigma as the reaction of the population to people with mental illness and the self-stigma as the prejudice that people with mental illness address in return to themselves.

There are several instruments that assess different dimensions of self-stigma. Some of the most used are the Perceived Devaluation and Discrimination Scale (PDD), in its successive versions[9-11], and the Internalized Stigma of Mental Illness (ISMI)[12]. Recently, Ochoa[13] has developed in Spanish population the Self-Stigma Questionnaire (SSQ) designed specifically for people with schizophrenia.

The difference between these scales and the DISC scale is that the latter allows the detailed assessment of the individual's reports of experienced discrimination in particular areas of daily life. The DISC is an interview-based scale which measures the experiences of mental health-related discrimination ('being treated unfairly') in key areas of everyday life and social participation, including work, marriage, parenting, housing, leisure, and religious activities. The DISC was designed to be completed by people who have direct personal experience of mental health problems.

In the first version of the DISC scale, it was measured the overall pattern of experienced discrimination and anticipation by people with schizophrenia in a study in 27 coun-

tries[14]. It has also been used to evaluate the impact of stigma on adherence to antipsychotic treatment in schizophrenia[15], the relationship of stigma with disease characteristics[16] and in different types mental health services users[17,18], among other studies.

Later, it was developed a new version of the DISC, the DISC 12 that was also used to assess anticipated discrimination in people with depression in 30 countries[19]. Since then, DISC 12 has been used in several studies, such as the FEDORA project, designed to evaluate the impact of stigma in patients with early episodes of depression and schizophrenia[20]. It has also been used to asses Australian population with different disorders[21], in English population[22], in subjects with severe pathology receiving assertive community treatment[23] as well as in individuals with gender dysphoria[24].

The DISC-12 scale is composed of four subscales that evaluate separately: perceived discrimination, anticipated discrimination, strategies for coping with stigma, and positive discrimination. The whole scale consists of 32 items. The perceived discrimination subscale has 21 items, the anticipated discrimination 4 items, the relative to coping strategies 2 items and the one that evaluates positive treatment 5 items. All of those items are included in the DISC-12 scale as well[4].

The first psychometric assessment of the DISC scale showed that the subscale about perceived discrimination had the best psychometric properties, recommending the use of this subscale exclusively and suggesting the need to improve the others, especially the anticipated discrimination subscale.

The DISC 12 scale has been translated into several languages and there are versions in Amharic, Arabic, Tamil, Traditional Chinese, Tunisian Arabic, Turkish Arabic, Swedish and Urdu. But no validation studies have been performed in these languages. Regarding Spanish language, it was translated through a direct and inverse translation and discussion in a focal group, in accordance with the recommendations of its authors (http://www.indigo-group.org/stigma-scales/). The Spanish versions of both DISC and DISC-12 have been used in Spanish population through two studies in 27 and 30 countries, respectively mentioned above.

Given the relevance of having a greater number of Spanish validated instruments for the evaluation of stigma and, especially of the perceived discrimination, and the fact that the DISC-12 scale is the most used in different international studies, we decided with this study to validate this instrument in Spanish population with Schizophrenia. As specific objectives are: to do the external validation according to the Self-Stigma Questionnaire (SSQ) scale[13] and Link PDD scale, recently validated in Spanish[25] and to validate

their internal consistency, test-retest reliability and inter-rater reliability.

METHODS

A descriptive study was performed. Patients were assessed in two moments with a difference between seven to fifteen days. In one of these evaluations two evaluators assessed all patients.

Sample: According with the number of instrument's items (32 items), a sample size of 96 subjects was calculated.

Ninety-six individuals were initially included in the study, but seven of them dropped out after the first assessment. So, eighty-nine individuals composed the final simple. All subjects were recruited in all of the care services of the Institute of Psychiatry and Mental Health (IPySM) at the San Carlos University Hospital in Madrid (SCUH) over a period of eight months. Inclusion criteria were: to be eighteen to sixty-five years old, to have been diagnosed of Schizophrenia according to DSM-IV-R criteria, to be in a stable clinical situation, to receive clinical care and treatment at the IPySM at the recruitment time, to be able to understand the assessment instruments and to speak Spanish language.

Exclusion criteria were: not to have legal competence or to have comorbidity with other mental disorders in DSM-IV TR axis I, with the exception of Drugs abuse disorder.

The sample was selected by convenience between all eligible individuals at the IPySM until the simple size was completed.

The study variables were the following: socio-demographic (date of bird, gender, civil status, relationship status, country of origin, ethnicity, highest level of education, and work situation) and clinical variables (type of schizophrenia, length of disease in years and clinical staging according to McGorry staging model[26]. A socio-demographic questionnaire was administered to collect all data except date of bird that was collected from clinical records. Clinical data were collected from the clinical records and directly asking to the psychiatrists responsible of every patient. Clinical stage was established according to the described model based on clinical data registered in clinical records.

Instruments to evaluate stigma, clinical and functional situation

- Discrimination and Stigma Scale DISC 12 (© 2008 The INDIGO Study Group). This instrument is interview based and requires an example of every question in case of doubt in order to be sure of the answer. The DISC-12 scale assesses stigma and perceived and anticipated discrimination in people with mental disorders. The instrument includes a total of 32 items which are composed of 4 subscales: **Unfair Treatment** (assesses experiences of discrimination of the person being assessed, 21 items), **Stopping Self** (assesses anticipated discrimination considering to what extent the individual has limited their participation in social spaces, 4 items), **Overcoming Stigma** (explores what strategies the patient has to face stigma, 2 items) and **Positive Treatment** (assesses the possibility of positive discrimination by the disease or its treatment, 5 items). All items are rated by a 4-point Likert scale ranging from "nothing" to "a lot". Higher scores in all or in every subscale indicate higher stigma.

- Self-perception of Stigma Questionnaire for people with schizophrenia (SSQ)[13]. The questionnaire includes 14 items regarding the perception of social stigma. The items were performed The items were performed based on patients' with schizophrenia information obtained in focus groups. Higher scores in this instrument indicate lower self-stigma.

- The Link Perception of Social Stigma Scale (PDD)[9-11,25]. The original version of the PDD consists in 12 items assessing the attitude of the person completing the questionnaire and of his or her beliefs extrapolated to society regarding social/public stigma. In the version of Martínez-Zambrano et al.[25], a second area was included, that assess what the individual thinks about his/her own situation (self-stigma).

- Social Functioning Scale (SFS)[27,28]. The scale evaluates social functioning in people with schizophrenia. This scale is useful for plan rehabilitation processes. The scale includes 7 subscales: withdrawal, relationships, independence/performance, independence/competence, recreational activities, social activities and employment. Higher scores in the SFS indicates better social functioning.

- Global Assessment of Functioning (GAF)[29]. This scale assesses the global functioning of the patient in relation to mental health. The scores ranges from 0 to 100. Higher scores indicate better psychological and clinical functioning.

Statistical analysis

Descriptive and statistical analysis of the sample was carried out with the SPSS 22. Cronbach α was calculated in the three evaluations of DISC-12 in order to assess the internal consistency of the instrument. The reproducibility (test–retest reliability), which establishes the stability of an instrument over time in a stable population, was evaluated by

intra-class correlation coefficient. Furthermore, this coefficient was used also in order to determine the reliability between different raters (inter-rater reliability). A Pearson correlation coefficient was calculated to assess the relationship between the DISC-12 and other measures: self- stigma scale (PDD and SSQ), social functioning (SFS), and overall functioning (GAF). SSQ and PDD were used as concurrent validity and the rest of variables were used as divergent validity.

Ethical and legal issues

The study complied with current international and Spanish research legislations and data protection including World Medical Association and Helsinki Declaration. The Ethical and Clinical Research Committee of the San Carlos University Hospital authorized the study. All the patients signed the informed consent to participate in the study.

RESULTS

A total of eighty-nine subjects composed the study sample. The socio-demographic and clinical characteristics as well as the global results of the scales at the first assessment by the first evaluator are shown in Table 1. Figure 1 shows the number of patients who have answered presence of discrimination in some of the items in the scale (at the first assessment and first evaluator)

Reliability

Internal Consistency

The internal consistency of the DISC-12 in the three administrations was calculated through Cronbach α coefficient and the results are shown in Table 2.

The Cronbach α for the first assessment in each subscale was: Unfair treatment subscale was 0.795, for Stopping Self was 0.389, for Overcoming Stigma was -0.155 and for Positive Treatment was 0.833.
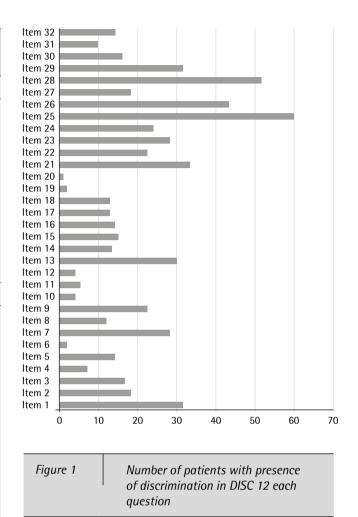
Test-retest reliability

To assess test–retest reliability over one to two weeks, intra-class correlation coefficients was calculated on each item and on the subscales. The results are shown in Table 3. Two items have values under 0.3. Four subscales have values higher than 0.672.

Table 1	Sociodemographic and clinical characteristics of the sample		
Sociodemographic variables		**N**	**%**
Gender	Men	67	75.30
	Woman	22	24.70
Marital Status	Single	71	79.80
	Married	6	6.70
	Divorced/ Separated	11	12.40
	Widower	1	1.10
Academic studies	Primary	7	7.87
	Secondary	66	74.16
	University	15	16.85
	Missing	1	1.12
Living with	Alone	20	22.48
	With parents	45	50.56
	Own family	6	6.74
	Care home/ supervised	14	15.73
	Other	3	3.37
	Missing	1	1.12
Employment	Active employment	11	12.36
	Active unemployment	12	13.48
	Student	7	7.87
	Work inability	52	58.43
	Temporary disability	6	6.74
	Missing	1	1.12
Zone of origin	Spain	70	78.65
	Africa	2	2.25
	America	9	10.11
	Asia	1	1.12
	Rest of Europe	3	3.37
	Missing	4	4.50

Table 1	Continuation		
Sociodemographic variables		**N**	**%**
Previous year's incomes	<500€	51	57.30
	500 – 1000€	24	26.97
	> 1000€	12	13.48
	Missing	2	2.25
Clinical stage*	2	11	12.36
	3a	15	16.85
	3b	48	53.94
	3c	15	16.85
		Mean	**SD**
Age		43.82	11.41
Length of disease (years)		16.95	11.67
Number of Previous psychiatric admissions		0.26	0.514
DISC subscales			
Unfair Treatment		4.84	5.52
Stopping Self		2.62	1.98
Overcoming stigma		1.05	1.26
Positive Treatment		12.43	2.62
PDD subscales			
Social subscale		34.40	3.66
Auto subscale		23.00	4.96
SFS		25.10	5.50
SSQ		67.68	17.02

(*) Assessed according to McGorry clinical staging model[26]

Table 2	DISC 12 Internal consistency between evaluators and two times
	Cronbachs'α
First assessment; first rater	0.741
First assessment; second rater	0.850
Second assessment	0.816

Figure 1	Number of patients with presence of discrimination in DISC 12 each question

Inter-rater reliability

Intra-class correlations coefficient was used to assess inter-rater agreement between pairs of scores provided by two different raters. Coefficients were calculated at each item and the subscales. As it is shown in Table 4, 21 items score values above 0.8, 10 items values between 0.6-0.8 and only one item lower than 0.6 value, specifically 0.411. In four items one of the assessments was zero and the intra-class correlation coefficient was zero, too, because it was impossible to calculate.

Correlations with other variables measuring perceived stigma and functionality

Different scales were used to assess concurrent and divergent validity with the DISC-12 (table 5). Unfair Treatment subscale and Stopping Self subscale were correlated with the second factors of the PDD (self-stigma) and SSQ. Overcoming Stigma subscale was related with SFS and GAF, while Positive Treatment was not related with other vari-

Table 3	Intraclass correlation coefficient of the DISC-12 between two evaluations				
Items	First evaluation		Second evaluation		Intraclass correlation coefficient
	Mean	(SD)	Mean	(SD)	
1. Have you been treated unfairly in making or keeping friends?	0.78	1.12	0.58	0.91	**0.667**
2. Have you been treated unfairly by the people in your neighborhood?	0.35	0.78	0.45	0.85	**0.784**
3. Have you been treated unfairly in dating or intimate relationships?	0.26	0.63	0.26	0.53	**0.312**
4. Have you been treated unfairly in housing?	0.10	0.45	0.06	0.23	**0.765**
5. Have you been treated unfairly in your education?	0.26	0.72	0.29	0.76	**0.898**
6. Have you been treated unfairly in marriage or divorce?	0.03	0.24	0.01	0.12	**–0.024**
7. Have you been treated unfairly by your family?	0.51	0.90	0.52	0.96	**0.653**
8. Have you been treated unfairly in finding a job?	0.23	0.66	0.22	0.68	**0.819**
9. Have you been treated unfairly in keeping a job?	0.38	0.70	0.51	0.93	**0.746**
10. Have you been treated unfairly when using public transport?	0.03	0.16	0.01	0.12	**0.798**
11. Have you been treated unfairly in getting welfare benefits or disability pensions?	0.09	0.33	0.10	0.42	**0.918**
12. Have you been treated unfairly in your religious practices?	0.07	0.31	0.16	0.53	**0.397**
13. Have you been treated unfairly in your social life?	0.54	0.83	0.39	0.79	**0.741**
14. Have you been treated unfairly by the police?	0.19	0.49	0.26	0.53	**0.863**
15. Have you been treated unfairly when getting help for physical health problems?	0.22	0.51	0.20	0.50	**0.442**
16. Have you been treated unfairly by mental health staff?	0.20	0.53	0.33	0.72	**0.657**
17. Have you been treated unfairly in your levels of privacy?	0.26	0.74	0.19	0.52	**0.800**
18. Have you been treated unfairly in your personal safety and security?	0.20	0.60	0.19	0.55	**0.702**
19. Have you been treated unfairly in starting a family or having children?	0.03	0.24	0.06	0.37	**0.924**
20. Have you been treated unfairly in your role as a parent to your children?	0.01	0.12	0.01	0.12	**–0.030**
21. Have you been avoided or shunned by people who know that you have a mental health problem?	0.54	0.83	0.67	0.93	**0.572**
22. Have you stopped yourself from applying for work?	0.38	0.62	0.59	0.92	**0.428**
23. Have you stopped yourself from applying for education or training courses?	0.45	0.79	0.55	0.91	**0.569**

Table 3	Continuation				
		First evaluation		Second evaluation		Intraclass correlation coefficient
Items		Mean	(SD)	Mean	(SD)	
24. Have you stopped yourself from having a close personal relationship?		0.52	0.91	0.54	0.96	**0.493**
25. Have you concealed or hidden your mental health problem from others?		1.45	1.26	0.130	1.15	**0.698**
26. Have you made friends with people who don't use mental health services?		0.67	0.81	0.77	0.68	**0.796**
27. Have you been able to use your personal skills or abilities in coping with stigma and discrimination?		0.28	0.72	0.26	0.65	**0.713**
28. Have you been treated more positively by your family?		1.10	1.15	1.55	1.720	**0.294**
29. Have you been treated more positively in getting welfare benefits or disability pensions?		0.59	1.01	0.57	1.007	**0.626**
30. Have you been treated more positively in housing?		0.19	0.55	0.22	0.539	**0.577**
31. Have you been treated more positively in your religious activities?		0.16	0.55	0.32	0.757	**0.855**
32. Have you been treated more positively in employment?		0.26	0.72	0.38	0.842	**0.753**
Subscales						
DISC Unfair Treatment		5.27	5.97	5.47	6.38	**0.894**
DISC Stopping Self		2.79	2.09	2.98	2.66	**0.672**
DISC Overcoming Stigma		0.94	1.21	1.02	1.12	**0.770**
DISC Positive Treatment		12.66	2.25	12.08	2.47	**0.700**

ables. Finally, Total DISC was related with the second factor of the PDD (self-stigma) and SSQ.

DISCUSSION

The Spanish-language validation of the DISC-12 scale shows a good level of internal consistency in the three evaluations carried out, with a Cronbach α between 0.741 y 0.850, that indicates an appropriated consistency[30]. In contrast, the independent analysis of each subscale shows that the "Unfair treatment" (21 items) and the "Positive treatment" (5 items) have a very robust internal consistency with a Cronbach α higher than 0.79, but two subscales "Stopping Self" and "Overcoming stigma" do not have in themselves strong consistency.

In the original validation of the DISC scale in its first version (35 items)[4], it was already observed that the subscale "Stopping Self" and "Positive treatment" had a Cronbach α with values slightly lower than 0.70, but not as low as in our study. Since the Unfair treatment (21 items) and Positive treatment (5 items) sub-scales represent the largest proportion of items on the whole scale, the internal consistency of the instrument is adequate.

Inter-rater reliability as measured by the intra-class correlation coefficient is above 0.6 in all items except 5, with values greater than 0.8, most of them. There are 4 items with values of 0 that correspond to religious practice, treatment received by the police, starting a family or having children and paternal role. They refer to situations that a significant proportion of people with schizophrenia have not experien-

Table 4	Intraclass correlation coefficient of the DSIC-12 between two evaluators				
	First evaluator		Second evaluator		Intracalss correlation coefficient
Items	Mean	(SD)	Mean	(SD)	
1. Have you been treated unfairly in making or keeping friends?	0.68	1.05	0.89	1.15	**0.682**
2. Have you been treated unfairly by the people in your neighbourhood?	0.32	0.74	0.47	0.96	**0.908**
3. Have you been treated unfairly in dating or intimate relationships?	0.21	0.41	0.26	0.45	**0.926**
4. Have you been treated unfairly in housing?	0.05	0.22	0.05	0.22	**1.000**
5. Have you been treated unfairly in your education?	0.26	0.65	0.26	0.65	**1.000**
6. Have you been treated unfairly in marriage or divorce?	0.00	0.00	0.00	0.00	**1.000**
7. Have you been treated unfairly by your family?	0.26	0.73	0.37	0.95	**0.769**
8. Have you been treated unfairly in finding a job?	0.11	0.31	0.16	0.68	**0.685**
9. Have you been treated unfairly in keeping a job?	0.47	0.84	0.47	0.96	**0.965**
10. Have you been treated unfairly when using public transport?	0.11	0.31	0.05	0.22	**0.791**
11. Have you been treated unfairly in getting welfare benefits or disability pensions?	0.00	0.00	0.00	0.00	**1.000**
12. Have you been treated unfairly in your religious practices?	0.00	0.00	0.05	0.22	**0.000**
13. Have you been treated unfairly in your social life?	0.16	0.37	0.32	0.58	**0.645**
14. Have you been treated unfairly by the police?	0.00	0.00	0.05	0.22	**0.000**
15. Have you been treated unfairly when getting help for physical health problems?	0.11	0.31	0.16	0.37	**0.877**
16. Have you been treated unfairly by mental health staff?	0.05	0.22	0.21	0.53	**0.411**
17. Have you been treated unfairly in your levels of privacy?	0.21	0.71	0.21	0.71	**1.000**
18. Have you been treated unfairly in your personal safety and security?	0.11	0.31	0.16	0.37	**0.877**
19. Have you been treated unfairly in starting a family or having children?	0.11	0.45	0.00	0.00	**0.000**
20. Have you been treated unfairly in your role as a parent to your children?	0.00	0.00	0.11	0.45	**0.000**
21. Have you been avoided or shunned by people who know that you have a mental health problem?	0.53	0.84	0.42	0.60	**0.892**
22. Have you stopped yourself from applying for work?	0.42	0.83	0.21	0.71	**0.656**
23. Have you stopped yourself from applying for education or training courses?	0.32	0.74	0.16	0.37	**0.782**
24. Have you stopped yourself from having a close personal relationship?	0.47	1.02	0.53	1.02	**0.662**

Table 4	Continuation					
		First evaluator		Second evaluator		Intracalss correlation coefficient
Items		Mean	(SD)	Mean	(SD)	
25. Have you concealed or hidden your mental health problem from others?		1.47	1.38	1.21	1.35	**0.923**
26. Have you made friends with people who don't use mental health services?		1.00	1.10	0.95	1.02	**0.963**
27. Have you been able to use your personal skills or abilities in coping with stigma and discrimination?		0.26	0.65	0.16	0.50	**0.816**
28. Have you been treated more positively by your family?		1.05	1.17	1.00	1.15	**0.791**
29. Have you been treated more positively in getting welfare benefits or disability pensions?		0.79	1.22	0.74	1.19	**0.930**
30. Have you been treated more positively in housing?		0.37	0.95	0.37	0.83	**0.964**
31. Have you been treated more positively in your religious activities?		0.47	0.84	0.53	1.02	**0.915**
32. Have you been treated more positively in employment?		0.16	0.68	0.32	0.94	**0.719**
Subscales						
DISC Unfair Treatment		3.73	3.63	4.68	5.08	0.796
DISC Stopping Self		2.68	2.02	2.10	2.23	0.754
DISC Overcoming Stigma		1.26	1.40	1.10	1.10	0.940
DISC Positive Treatment		12.15	3.71	12.05	4.0204	0.903

Table 5	Correlation between DISC-12 subscales and clinical and other stigma questionnaires					
		PDD social-stigma subscale	PDD auto-stigma subscale	SFS	SSQ	GAF
DISC 12 Unfair Treatment	Pearson Coeficient	0.032	0.281	0.03	−0.407	−0.204
	Sig. (bilateral)	0.801	**0.021**	0.770	**0.000**	0.073
DISC 12 Stopping Self	Pearson Coeficient	0.046	0.27	0.1	−0.484	−0.03
	Sig. (bilateral)	0.715	**0.027**	0.360	**0.000**	0.793
DISC 12 Overcoming Stigma	Pearson Coeficient	0.229	−0.067	0.36	0.108	0.304
	Sig. (bilateral)	0.066	0.589	**0.000**	0.338	**0.007**
DISC 12 Positive Treatment	Pearson Coeficient	0.086	−0.108	−0.19	0.029	0.16
	Sig. (bilateral)	0.498	0.383	0.080	0.800	0.161
DISC 12 Total	Pearson Coeficient	0.051	0.305[*]	0.176	−0.425	−0.161
	Sig0. (bilateral)	0.686	**0.012**	0.107	**0.000**	0.159

ced, and in the evaluation, one of the evaluators has not detected any cases above zero. This fact makes it impossible to calculate its statistical level. In the study of validation of the original scale, these four items also did not obtain enough data to test psychometric quality, but in spite of this it was considered pertinent to keep them included[4]. In our study, the four subscales had good inter-rater reliability.

The test-retest reliability is also considered good in the whole and in each of the subscales, with the Unfair Treatment scale having the best intra-class correlation coefficient. There are four items with a very low correlation coefficient, less than 0.4 and refer to intimate relationships, marriage or divorce, religious practice and paternal / maternal role. Three of these items also had a low correlation coefficient in the evaluation of inter-rater reliability. In part, they correspond to those with a value of not applicable, since they are items with low prevalence in our sample of patients, which shows the difficulty for the analysis of the same.

Regarding the convergent validity, the total score of the DISC 12 scale and the Unfair Treatment and Stopping Self subscales have an optimal correlation with SSQ scale (p<0.001). The SSQ scale assesses both the perception of the subject of a discriminatory treatment from the people in their environment and the anticipation of stigma and avoidance of situations due to fear of suffering it. However, this scale does not evaluate positive treatment or strategies to overcome stigma, so it is expected that the two subscales of DISC 12 that evaluate these items have no correlation. The SSQ scale[13] has been developed in Spanish population and specifically from focus groups with people with schizophrenia in rehabilitation services, which can also contribute to a good correlation with DISC 12 for this population.

The convergent validity of the total DISC-12 and of the unfair treatment and stopping self-subscales was also elevated with the self-perceived stigma subscale of the PDD scale (Link perception social stigma scale). As in the correlation with the SSQ scale, it is expected that the two subscales of DISC 12 referring to Overcoming stigma and positive treatment do not have any correlation because the fact that PDD do not include any items related to these issues.

The Overcoming Stigma subscale of DISC 12 correlates positively with the two measures of functionality used in this study, SFS and GAF, with the result that more functionality, greater ability to cope stigma. The result seems clinically consistent and also is concordant for the two scales. In contrast, in other studies, an inverse relationship has been found between a higher level of self-stigma evaluated with SSQ and functionality assessed by SFS and GAF[13,31] or with SIMI and GAF[31]. In a study, assessing auto-stigma with the "internalized stigma of mental illness scale" (ISMIS), signifi-

cant proportion of patients with schizophrenia experience stigma and stigma is associated with lower level of functioning[32].

By contrast, neither the total score of the DISC 12 nor the rest of the subscales correlated with the scales of functionality, being these results similar to Martinez-Zambrano study[25]. Given the differences between other self-stigma measurement instruments and DISC 12, which specifically assesses the experience of discrimination, it is difficult to make comparisons between them

LIMITATIONS

The study has different limitations. Firstly, some of the items have not been answered because they are not applicable. This has meant that some of the analyses could not be performed or have not shown positive results.

Secondly, the sample size is small, but enough to perform the validation data.

CONCLUSIONS

The Spanish version of the DISC 12 scale is valid, has a good internal consistency as a whole, is reliable both temporally and between interviewers and has good convergent validity with the SSQ and PDD scales that assess self-perception of stigma. Although the validation parameters are good for the scale, the "Unfair treatment" subscale is the most robust of the four subscales.

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