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Spanish adaptation and validation of the brief form of the Life Skills Profile-20: an instrument to assess daily living skills in real clinical settings

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Introduction. The Life Skills Profile (LSP) is an assessment instrument of general function in activities of daily life, especially developed for people diagnosed of a severe mental illness. There are different versions of the LSP. The aim of this paper is to validate and adapt the brief form of the LSP (LSP-20) to the Spanish population.

Methods. Two different samples have been recruited for this study. The first sample was made up of 231 outpatients with a clinical diagnosis of schizophrenia who were randomly selected. The following analyses were performed: principal axis factoring analysis, internal consistency and convergent and discriminant validity between the LSP-20 and the Positive and Negative Symptoms Scale (PANSS). The second sample was recruited in order to assess interrater reliability and was composed of 30 long-stay inpatients with a diagnosis of chronic schizophrenia.

Results. Factor analysis produced four factors accounting for 41.22 % of the total variance. The following labels were suggested for the factors: compliance, social initiative, self-care and antisocial behavior. Internal consistency ranged from 0.69 (antisocial behavior) to 0.79 (social initiative). Correlations between the LSP-20 and the PANSS were moderate and clinically significant. Interrater reliability ranged from 0.58 (to have defined interests) to 0.89 (to wear clean clothes usually).

Conclusions. The brief form of LSP can be useful in real clinical settings to help to personalize the aims of the rehabilitation interventions and to evaluate the health care model.

Key words:
Life Skills Profile (LSD). Psychometric properties. Routine outcome assessment. Severe mental illness. Adaptative functioning. Psychosis.

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Adaptación y validación española del *Life Skills Profile,* forma abreviada (LSD-20): un instrumento para valorar las habilidades de la vida cotidiana en contextos clínicos reales

Introducción. El *Life Skills Profile* (LSP) es un instrumento para medir la funcionalidad general en las actividades de la vida cotidiana, especialmente construido para personas que han sido diagnosticadas de un trastorno mental severo. Existen diferentes versiones del LSP. El objetivo del presente trabajo es adaptar y validar la versión breve de 20 ítems al español (LSP-20).

Métodos. Se han utilizado dos muestras, la primera compuesta por 231 sujetos seleccionados aleatoriamente con diagnóstico de esquizofrenia que habían recibido tratamiento ambulatorio. En esta muestra se realizaron los siguientes análisis: análisis factorial de ejes principales, análisis de la consistencia interna y evaluación de la validez convergente/discriminante del LSP-20 con la PANSS. La segunda muestra se utilizó para evaluar la fiabilidad interobservadores y está formada por 30 pacientes diagnosticados de esquizofrenia residentes en una unidad de media y larga estancia.

Resultados. Tras el análisis factorial se proponen cuatro factores que explican un 41,22 % de la varianza. Los nombres propuestos para estos factores son: cumplimiento terapéutico, iniciativa social, autocuidado y conducta antisocial. Éstos muestran una consistencia interna que oscila entre 0,69 (conducta antisocial) y 0,79 (iniciativa social). Las correlaciones del LSP-20 con la PANSS han resultado ser moderadas y clínicamente significativas. La fiabilidad interobservadores oscila entre los valores 0,58 (tener intereses definidos) y 0,89 (vestir ropas limpias normalmente).

Conclusiones. La versión corta del LSP puede resultar útil en contextos clínicos reales para ayudar a individualizar los objetivos de las intervenciones rehabilitadoras y para evaluar el modelo asistencial.

Palabras clave:
LSP. Propiedades psicométricas. Evaluación rutinaria de resultados. Trastorno mental severo. Funcionamiento adaptativo y psicosis.

INTRODUCTION

Within the paradigm of community psychiatry, the psychiatric rehabilitation model proposed by Anthony and Lieberman in 1986[1] is based on four dimensions: the disease, that is, lesions or dysfunctions in the central nervous system with a causal relationship with the psychotic symptomatology; psychopathology; practical disabilities in daily life and finally, social or handicap difficulties. This conceptual model stresses the need to have measurement instruments to assess both social functioning and disability in persons suffering schizophrenia or other serious long-term mental disorders. Beginning with the deinstitutionalization policies, the need to assess the grade of personal, interpersonal and social functioning arises to assess the effectiveness of the rehabilitation programs.

In schizophrenia, as in other serious and long-term psychiatric disorders, relevant psychosocial difficulties emerge[2,3]. These come from acute symptoms, chronic symptoms, secondary problems, such as demoralization and loss of self-esteem and from extrinsic disadvantages such as poor social support.

Scientific evidence shows that when psychosocial rehabilitation programs are performed jointly with an adequate pharmacotherapy, they are effective in improvement of social functioning and daily life skills[4], however this evidence is limited in regards to the patients' capacity to generalize that learned to their natural surroundings[5]. Thus, more research in this aspect is necessary.

In 1989, the Life Skills Profile (LSP-39)[6] was presented by Rosen et al. It was designed to assess general functionality in daily life activities. The authors proposed grouping the items in the following subscales: *communication, social contact, non-turbulence, self-care* and *responsibility*. Although it was initially developed for persons with schizophrenia, its applicability was subsequently extended to all those persons suffering other chronic mental diseases and even in some organic disorders. There is good information on its psychometric characteristics, reliability and validity.

In 1992, a group of Spanish investigators adapted and validated this version to Spanish[7,8]. As a result of this work, they proposed some new subscales that slightly differ in the grouping of the items from the original ones. These are «communication and social contact», «interpersonal social behavior», non-personal social behavior», «independent life» and «self-care».

Only this version is available nationally, although the original authors continue to make new proposals and versions of the LSP.

In 1995, a new psychometric study[9] led the authors to propose an alternative grouping of the items. In this new version, the five subscales are: *withdrawal, bizarre, antisocial, self-care* and *compliance*. Furthermore, this version proposes to measure disability, that is, the greater the score obtained, the greater the disability, on the contrary to the first version that measures the opposite.

In order to have instruments whose use is feasible for evaluation in the real clinical practice contexts, administrable instruments must be designed, minimizing effort and cost10. Along this line, the authors of the second version elaborated a brief form of 16 items, the LSP-16, whose main difference in content regarding the LSP-39 is that the former omits the subscale of communication.

In 2001, Rosen et al.[11] published a new version of 20 items, following the perspective of measuring in the sense of disability of the LSP-16 in order to maintain compatibility between the brief versions. The objective of the elaboration of the LSP-20 was to re-include the old scale of «communication», now called «bizarre» and that is about the positive phenomenology of the Positive and Negative Syndrome Scale (PANSS). The authors state that evaluation can be done from the perspective of disability or ability, according to how the items are scores (0-3 or 4-1), respectively. Table 1 shows the different versions of LSP published.

Within the framework of the new concept of disability proposed by the WHO[12,13], and assuming that this new model involves the design and validation of instruments adapted to their constructs and definitions, the LSP-20 may be an operative measure that contains wide dimensions of disability, feasible to be used in the real clinical practice, specific for psychosocial rehabilitation in the psychiatric practice and compatible with the new conceptualizations on disability.

The aim of this study is to adapt and validate the LSP-20 to the Spanish population.

METHODS

The following analyses have been performed to make the adaptation and validation of the Spanish version of LSP-20:

Analysis 1: validity

- Factorial analysis of the principal axes with varimax rotation.
- Correlations of the resulting factors of the analysis with the subscales of the original LSP-20.
- Correlation of the resulting factors of the LSP-20 with the PANSS subscales.

The PANSS scale evaluates the positive and negative symptoms that give rise to the different syndromes of schizophrenia. It has extensive psychometric research that proves its reliability and validity. This makes the PANSS a good

Table 1 Published versions of Life Skills Profile (LSP)

Item	LSP-39 (1989)	1st Spanish version LSP-39 (1992)	LSP-39 (1995)	LSP-20 (2001)
1. Does this person generally have any difficulty with initiating and responding to conversation?	Communication	Comunication-social contact	Withdrawal	Withdrawal
2. Does the person generally intrude or burst in on others' conversation (e.g., interrupts you when you are talking)?	Communication	Interpersonal-social behavior	Antisocial	–
3. Does this person generally withdraw from social contact?	Social contact	Comunication-social contact	Withdrawal	Withdrawal
4. Does this person generally show warmth to others?	Social contact	Comunication-social contact	Withdrawal	Withdrawal
5. Is this person generally angry or prickly towards others?	Non-turbulence	Interpersonal-social behavior	Antisocial	–
6. Does this person generally take offence readily?	Non-turbulence	Interpersonal-social behavior	Antisocial	–
7. Does this person generally make eye contact with others when in conversation?	Communication	Comunication-social contact	Withdrawal	–
8. Is it generally difficult to understand this person because of the way he or she speaks (e.g., jumbled, garbled or disordered)?	Communication	Comunication-social contact	Bizarre	Bizarre
9. Does this person generally talk about odd or strange ideas?	Communication	Interpersonal-social behavior	Bizarre	Bizarre
10. Is this person generally well-groomed (e.g., neatly dressed, hair combed)?	Self-care	Self-care	Self-care	Self-care
11. Is this person's appearance (facial appearance, gestures) generally appropriate to his or her surroundings?	Communication	Interpersonal-social behavior	Bizarre	Bizarre
12. Does this person wash himself or herself without reminding?	Self-care	Self-care	Self-care	–
13. Does this person generally have an offensive smell (e.g., due to body, breath or clothes)?	Self-care	Self-care	Self-care	–
14. Does this person wear clean clothes generally, or ensure that they are cleaned if dirty?	Self-care	Self-care	Self-care	Self-care
15. Does this person generally neglect her or his physical health?	Self-care	Independent life	Self-care	Self-care
16. Does this person generally maintain an adequate diet?	Self-care	Self-care	Self-care	Self-care)
17. Does this person generally look after and take her or his own prescribed medication (or attend for prescribed injections on time) without reminding?	Responsibility	Self-care	Compliance	Compliance
18. Is this person willing to take psychiatric medication when prescribed by a doctor?	Responsibility	Self-care	Compliance	Compliance
19. Does this person co-operate with health services (e.g. doctors and/or other health workers)?	Responsibility	Self-care	Compliance	Compliance
20. Is this person generally inactive (e.g., spends most of the time sitting or standing around doing nothing)?	Social Contact	Independent life	Withdrawal	–
21. Does this person generally have definite interests (e.g., hobbies, sports, activities) in which he or she is involved regularly?	Social Contact	Independent life	Withdrawal	Withdrawal
22. Does this person attend any social organisation (e.g., church, club or interest group but excluding psychiatric therapy groups)?	Social Contact	Independent life	Withdrawal	–

Continue...

Table 1 Published versions of Life Skills Profile (continuation)

Item	LSP-39 (1989)	1st Spanish version LSP-39 (1992)	LSP-39 (1995)	LSP-20 (2001)
23. Can this person generally prepare (if needed) her or his own food/meals?	Self-care	Independent life	Self-care	–
24. Does this person generally budget (if needed) to live within his or her means?	Self-care	Independent life	Self-care	–
25. Does this person generally have problems (e.g., friction, avoidance) living with others in the household?	Non-turbulence	Interpersonal social behavior	Antisocial	Antisocial
26. What sort of work is this person generally capable of (even if unemployed, retired or doing unpaid domestic duties)?	Self-care	Independent life	Self-care	Self-care
27. Does this person behave recklessly (e.g., ignoring traffic when crossing the road)?	Non-turbulence	Self-care	Antisocial	–
28. Does this person destroy property?	Non-turbulence	Interpersonal social behavior	Antisocial	–
29. Does this person behave offensively (includes sexual behaviour)?	Non-turbulence	Interpersonal social behavior	Antisocial	Antisocial
30. Does this person have habits or behaviours that most people find unsociable (e.g., spitting, leaving lighted cigarette butts around, messing up the toilet, messy eating)?	Self-care	Self-care	Antisocial	–
31. Does this person lose personal property?	Responsibility	Interpersonal social behavior	Self-care	–
32. Does this person invade others' space (rooms, personal belongings)?	Non-turbulence	Interpersonal social behavior	Antisocial	–
33. Does this person take things which are not his or hers?	Responsibility	Interpersonal social behavior	Antisocial	–
34. Is this person violent towards others?	Non-turbulence	Interpersonal social behavior	Antisocial	Antisocial
35. Is this person violent to him or herself?	Non-turbulence	Interpersonal social behavior	Antisocial	–
36. Does this person get into trouble with the police?	Non-turbulence	Interpersonal social behavior	Antisocial	–
37. Does this person abuse alcohol or other drugs?	Non-turbulence	Interpersonal social behavior	Antisocial	–
38. Does this person behave irresponsibly?	Non-turbulence	Interpersonal social behavior	Antisocial	Antisocial
39. Does this person generally make and/or keep up friendships?	Social contact	Comunication-social contact	Withdrawal	Withdrawal

instrument to measure convergent /discriminant validity with the LSP-20[14-16].

These analyses were done in a sample made up of 231 randomly selected patients with a diagnosis of schizophrenia (according to DSM-IV criteria) who had received out-patient psychiatric treatment in any of the Mental Health Sites coordinated by Sant Joan de Déu-Serveis de Salut Mental located in different populations of the metropolitan area of Barcelona. Of the 231 patients enrolled in the study, 204 completed the LSP and PANSS evaluation. Mean age of these patients is 39.84 years (SD: 12.05; range: 18-67 years). A total of 66.7 % of the sample are men (N = 136) and 33.3 % are women (N = 68).

The scale was administered by professionals from Sant Joan de Déu-Serveis de Salut Mental.

These data were processed with the statistical program SPSS 11.0 17

Analysis 2: reliability

Analysis of the internal consistency of the original subscales of LSP-20 and the subscales derived from the factorial one

These analyses were done using the same samples as in analyses 1 and also using the statistical program SPSS 10.0.

Analysis of interrater reliability (kappas and weighted kappas)

Both analyses (kappas and weighted kappas) were done because although the kappa index is the most common measurement to assess concordance, it is more adequate to evaluate the grade of agreement between two responses of a nominal categoric scale since it treats all the discordances equally. When the responses are collected in a scale with more than two ordered categories, as is the case of the LSP scale, the calculation of this index should be modified to make it possible to incorporate discordances of different seriousness. This means that they make it possible to attribute different weights to the different forms of disagreement. In these cases, the weighted kappa should be used[18].

Two psychologists independently recorded the LSP-20 from the information given by the personal direct care taker of the patients (nursing staff). The data were obtained in a sample of 30 patients diagnosed of schizophrenia, stay in the Middle and Long Stay Unit of Sant Joan de Déu-Serveis de Salut Mental located in Sant Boi de Llobregat (Barcelona). Mean age is 30.8 years (SD: 3.83; range: 26–40 years). A total of 83.33 % of the subjects (N = 25) were men and 16.67 % women (N = 5). The statistical analysis was done with the statistical program STATA 8.0[19].

In all the analysis, the LSP-20 was scored by evaluating disability to provide the interpretation of the convergent-discriminant validity (correlation with the PANSS).

RESULTS

Validity

Factorial analysis: construct validity

Before presenting the results obtained, we will discuss the indicators of sample adaptation. The Barlett Test of Spericity (BTE) is used as a chi-square test and evaluates the null hypothesis that the R sample matrix comes from a population in which the variables are not correlated[20]. If the hypothesis is not rejected, the factorial solution reflects relationships due to chance and really non-existent. Significance level of the BTE in our sample is < 0.001. Consequently, the null hypothesis is rejected and the existence of systematic covariance between the variables is considered. The Kaiser-Meyer-Olkin (KMO) test indicates up to what point the associations between the variables may be explained by a lower number than that of the variables themselves. According to the authors, a minimum score of 0.50 is required to be able to make the analysis[20,21]. This value is 0.81 in our study. This elevated value indicates that there is a significant proportion of common variance and thus the factorial analysis (FA) is an appropriate procedure for these data.

Finally the sample size also makes it possible to perform the FA since a subject/variable ratio (SVR) of not less than 5 has been suggested[22]. The present study has a SVR = 10.2 (204 subj/20 var).

The extraction method of the principal axes analysis with oblimin rotation is chosen (we suppose that the factors are correlated) without forcing a priori factors. In this first analysis, five factors with eigenvalues superior to 1 are detected. After the analysis of the sedimentation chart, it is decided to try the four, five, and six factors solutions.

When the results are analyzed, that which has more clinical sense is the proposal of four factors. The factorial axes are first rotated obliquely (oblimin) and then ortogonally (varimax). Even though the factors have a mild correlation, and thus the oblimin rotation is recommended, given that the distribution of the items are the same with both the varimax method and the oblimin one, the solution is presented with the varimax rotation, as it is less dependent on the sample and consequently, more replicable[13].

The four factors account for 41.22 % of the variance.

Table 2 shows the saturation of each item in the factors. Although the items proposed for each factor are those that load more than 0.300, the complete pattern is presented. After the study of clinical significance of the items that load in each one of the factors, it was decided to call them the following: F1: compliance; F2: social Initiative; F3: self-care, and F4: antisocial behavior.

Correlations of the factors resulting from the factorial analysis with the subscales of the original LSP-20

The correlations of the resulting factors after the factorial analysis with the original subscales of the LSP-20 confirm the clinical sense of the factors. Factor 1 (compliance) correlates by 0.90 with the original compliance subscale. The factor called *social initiative* obtains a 0.93 correlation with the withdrawal subscale. Factor 2 (self-care) would be made up of the items of the bizarre and self-care subscales, correlating 0.87 and 0.79 respectively. Antisocial factor has a 0.95 correlation with the antisocial subscale. The remaining correlations between factors and subscales ranges from 0.14 (antisocial factor and withdrawal subscale) to

Table 2 Rotated factors matrix. Between brackets is the number of the item that corresponds to version LSP-39

Items	Factor 1 Compliance	2 Social initiative	3 Self-care	4 Antisocial behavior
12. Is this person willing to take psychiatric medication when prescribed by a doctor? (18)	**0.87**	0.07	0.06	0.15
13. Does this person co-operate with health services (e.g., doctors and/or other health workers)? (19)	**0.71**	–0.01	0.27	0.15
11. Does this person generally look after and take her or his own prescribed medication (or attend for prescribed injections on time) without reminding? (17)	**0.69**	0.11	0.17	0.16
19. Does this person behave irresponsibly (compliance with permission schedule, toxic consumption, attendance to medical visits, negligent social behavior with health, lack of puntuality, escapes, etc.)? (38)	**0.42**	0.12	0.35	0.35
9. Does this person generally neglect her or his physical health? (15)	**0.31**	0.20	0.28	0.13
5. Does this person generally talk about odd or strange ideas? (9)	**0.31**	0.18	0.21	0.13
3. Does this person generally show warmth to others? (4)	0.29	0.28	0.12	0.17
2. Does this person generally withdraw from social contact? (3)	0.15	**0.80**	0.06	–0.15
20. Does this person generally make and/or keep up friendships? (39)	0.10	**0.80**	0.05	–0.04
16. What sort of work is this person generally capable of (even if unemployed, retired or doing unpaid domestic duties)? (26)	–0.07	**0.59**	0.19	0.17
14. Does this person generally have definite (e.g. hobbies, sports, activities) in which he or she is involved regularly? (21)	–0.03	**0.55**	0.06	0.09
1. Does this person generally have any difficulty with initiating and responding to conversation? (1)	0.11	**0.49**	0.21	0.06
6. Is this person generally well-groomed (e.g., neatly dressed, hair combed)? (10)	0.10	0.11	**0.68**	0.12
8. Does this person wear clean clothes generally, or ensure that they are cleaned if dirty? (14)	0.21	0.09	**0.61**	0.03
7. Is this person's appearance (facial appearance, gestures) generally appropriate to his or her surroundings? (11)	0.10	0.11	**0.60**	0.16
4. Is it generally difficult to understand this person because of the way he or she speaks (e.g. jumbled, garbled or disordered)? (8)	0.17	0.29	**0.42**	0.09
10. Does this person generally maintain an adequate diet? (16)	0.29	0.11	**0.35**	0.08
17. Does this person behave offensively (includes sexual behaviour)? (29)	0.17	0.09	0.11	**0.86**
18. Is this person violent towards others? (34)	0.25	0.08	0.14	**0.71**
15. Does this person generally have problems (e.g. friction, avoidance) living with others in the household? (25)	0.31	-0.06	0.24	**0.38**

Rotation method: varimax.

0.66 (compliance factor and antisocial subscale). The remaining correlations can be consulted in table 3.

Besides the correlations, a test of comparison of measurements for repeated samples between the LSP-39 subscales and those of the original LSP-20 was done. The bizarre and compliance subscales showed no differences because they maintain the same items. Significant differences were only found in the antisocial subscale ($p < 0.001$) and in the total score ($p < 0.001$), the short version scoring more disability in both cases.

Correlations LSP-20 factors resulting with PANSS. Convergent-discriminant validity

To present the correlations of factors with the PANSS scale, only those statistically significant correlations must be taken into account. The significance grade has been established in a p value < 0.001. No correlations lower than this value have been demonstrated.

Factor 1, compliance, correlates with four items of the positive PANSS (delusions, 0.27; conceptual disorganization,

Table 3 Correlations of the resulting factors of the study with the original subscales of LSP-20

Original subescales LSP-20	Factors			
	1 Compliance	2 Social initiative	3 Self-care	4 Antisocial behavior
Withdrawal	0.27	0.97	0.36	0.14
Bizarre	0.47	0.36	0.87	0.34
Self-care	0.57	0.57	0.79	0.37
Antisocial	0.66	0.21	0.47	0.95
Compliance	0.90	0.18	0.45	0.45

0.26; suspicion/persecution, 0.26; hostility, 0.38), one item of the negative PANSS (stereotyped thinking, 0.24) and with five of the general one (uncooperativeness, 0.35; poor attention, 0.32; lack of judgment, 0.36; volition disturbance, 0.31, and poor impulse control, 0.41).

Factor 2 (social initiative) correlates with two items of the positive PANSS (delusions, 0.27; conceptual disorganization, 0.35) with all the items of the negative PANSS (blunted effect, 0.48; emotional withdrawal, 0.47; poor rapport, 0.44; social withdrawal, 0.51; difficulty in abstract thinking, 0.33; lack of spontaneity of conversation, 0.42, and stereotyped thinking, 0.34) and with 4 items of the general one (motor retardation, 0.28; poor attention, 0.34; volition disturbance, 0.36, and active social avoidance, 0.47).

On its part, factor 3 (self-care) correlates significantly with one item of the positive PANSS (conceptual disorganization, 0.25) three items of the negative PANSS (poor contract, 0.29; difficulty in abstract thinking, 0.25 and lack of spontaneity of conversation, 0.36) and with three other items of the general one (mannerism and posturing, 0.25; unusual thought content, 0.26, and volition disturbance, 0.32).

Finally, factor 4 (antisocial behavior) only correlates with two items of the positive scale (excitement, 0.35, and hostility, 0.36) and with three items of the general PANSS (uncooperativeness, 0.28; volition disturbance, 0.24, and poor stimulus control, 0.44).

Reliability

Analysis of internal consistence of the original subscales of LSP-20 and of the subscales derived from the factorial analysis

In table 4, we observe the internal consistence of the original subscales of LSP-20 and of the factors. The internal consistence ranges from 0.54 for the subscale that has a lower alpha, bizarre, to the subscale compliance, with an alpha of 0,82.

The alphas that are derived from the factors are somewhat higher, ranging from 0.69 for factor 4 to 0.79 for factor 1.

Analysis of interrater reliability

Table 5 shows interrater reliability. Only 3 items show a weighted kappa lower than or equal to 0.60 and superior in all the three cases to 0.57, considered as moderate. Fifteen of the 20 items show weighted kappas between 0.61-0.80, considered by the literature as good, while two of them show kappas greater than 0.81, very good.

DISCUSSION

For the Spanish version of the LSP-20, the data derived from this study suggest a solution of 4 statistically adequate factors that permit grouping of items in the subscales with good clinical significance. Examining the items that make up each one of the factors, it is observed how factor 1 groups the items related with compliance, such as attitudes towards medication, cooperating with health services, compliance with time schedules, etc. The validity of this factor is corroborated as it correlates with the PANSS in the items related with «poor impulse control» (0.42), lack of judgment (0.36) and «uncooperativeness» (0.34).

Factor 2 groups the more social items, such as, for example, being isolated, making or maintaining friendships, developing defined interests and the facility to maintain conversations. Furthermore, the correlations between factor 2 and the PANSS items confirm the social orientation of this

Table 4 Internal consistence original subscales and factors derived from the analysis

Subscales LSP-20 v. original	Cronbach's alpha
Withdrawal	0.74
Bizarre	0.54
Self-care	0.62
Antisocial	0.82
Compliance	0.73
Factors	
F1: compliance	0.77
F2: social initiative	0.79
F3: self-care	0.72
F4: antisocial behavior	0.69
Total	0.85

Table 5 Interrater reliability

Ítem	Grade of concordance expected	Kappa	Grade of weighted concordance	Weighted kappa
1. Does this person have any difficulty with initiating and responding to conversation?	80.00 % (27.89 %)	**0.72**	93.33 % (59.41 %)	**0.84**
2. Does this person generally withdraw from social contact?	63.33 % (28.89 %)	**0.48**	86.67 % (64.15 %)	**0.63**
3. Does this person generally show warmth to others?	66.67 % (24.67 %)	**0.56**	88.89 % (60.74 %)	**0.72**
4. Is it generally difficult to understand this person because of the way he or she speaks (e.g., jumbled, garbled or disordered)?	73.33 % (46.00 %)	**0.51**	91.11 % (68.89 %)	**0.71**
5. Does this person generally talk about odd or strange ideas?	66.67 % (25.67 %)	**0.55**	85.56 % (57.56 %)	**0.66**
6. Is this person generally well-groomed (e.g., neatly dressed, hair combed)?	70.00 % (27.11 %)	**0.59**	90.00% (63.19 %)	**0.73**
7. Is this person's appearance (facial appearance, gestures) generally appropriate to his or her surroundings?	60.00 % (24.67 %)	**0.47**	85.56 % (60.00 %)	**0.64**
8. Does this person wear clean clothes generally, or ensure that they are cleaned if dirty?	86.67 % (26.56 %)	**0.82**	95.56 % (57.85 %)	**0.89**
9. Does this person generally neglect her or his physical health?	66.67 % (33.33 %)	**0.50**	87.78 % (64.67 %)	**0.65**
10. Does this person generally maintain an adequate diet?	73.33 % (31.22 %)	**0.61**	90.00 % (58.44 %)	**0.76**
11. Does this person generally look after and take her or his own prescribed medication (or attend for prescribed injections on time) without reminding?	66.67 % (25.00 %)	**0.56**	83.33 % (56.22 %)	**0.62**
12. Is this person willing to take psychiatric medication when prescribed by a doctor?	56.67 % (29.56 %)	**0.38**	85.56 % (64.52 %)	**0.59**
13. Does this person co-operate with health services (e.g., doctors and/or other health workers)?	63.33 % (27.56 %)	**0.49**	87.78 % (65.19 %)	**0.65**
14. Does this person generally have definite interests (e.g., hobbies, sports, activities) in which he or she is involved regularly?	63.33 % (38.22 %)	**0.41**	86.67 % (68.15 %)	**0.58**
15. Does this person generally have problems (e.g., friction, avoidance) living with others in the household?	66.67 % (29.56 %)	**0.53**	88.89 % (64.44 %)	**0.69**
16. What sort of work is this person generally capable of (even if unemployed, retired or doing unpaid domestic duties)?	80.00 % (36.00 %)	**0.69**	93.33 % (72.96 %)	**0.75**
17. Does this person behave offensively (includes sexual behaviour)?	83.33 % (51.89 %)	**0.65**	91.11 % (70.89 %)	**0.69**
18. Is this person violent towards others?	80.00 % (42.22 %)	**0.65**	92.22 % (70.07 %)	**0.74**
19. Does this person behave irresponsibly (compliance with permission schedule, toxic consumption, attendance to medical visits, negligent social behavior with health, lack of punctuality, escapes, etc.)?	80.00 % (27.56 %)	**0.72**	91.11 % (59.19 %)	**0.78**
20. Does this person generally make and/or keep up friendships?	60.00 % (25.22 %)	**0.47**	84.44 % (61.33 %)	**0.60**

factor, the highest correlation in factor 2 being with item «social withdrawal» (0.51) of the PANSS.

Factor 3 is formed by items related with self-care, although it also includes the item expressing in a confused or altered way, which makes us think that it measures disorganized behavior, undoubtedly linked to the capacity to care for oneself. The PANSS items lack of «spontaneity of conversation» and «volition disturbance» are those that correlate most with this factor.

The items that make up factor 4 describe situations related with aggressive behaviors; the fact that the highest correlations of this factor with the PANSS are with the item «poor stimulus control» (0.44) and with that of «hostility» (0.36), indicates that the label of «aggressive behavior» describes the content well.

Finally, we want to comment the two single items that have demonstrated difficulties. The item being warm to others would be the only one that does not reach the marked

criterion of 0.30 to be included in a factor, but it could clearly be included in the factor of social initiative, where its weight is 0.28. On its part, the item that includes information on speaking of strange subjects, would be included in factor 1, (compliance). Even though this item reaches an acceptable weight in this factor, it would not have clinical sense in any of the factors proposed.

Thus, when the concurrent/discriminant validity is analyzed between PANSS and LSP, the correlations found show that even though both instruments measure different areas, la PANNS symptoms, and LSP disability, there is a moderate association between the presence and intensity of certain symptoms with the grade of alterations of some behaviors. Examining the correlations between items individually, it is observed that they have a clear clinical sense.

The internal consistency of the Spanish version of LSP-20 (= 0.85) is very similar to the 2001 brief Australian version (= 0.90). However, the factors that we propose have better internal consistency, thus may be a good alternative for grouping the items. Even though our grouping has a relevant clinical sense, if it is preferred to group the items following the original subscales of LSP-20, remember that the subscales «antisocial» and «total» give scores having greater disability because of the items chosen. This same result was found by the original authors11. On the other hand, if it is decided to maintain the grouping that is derived from the Spanish validation of the LSP-39 done in 1992, it should be stressed that the subscale called «non-personal social communication» is reduced to one item.

The psychometric studies done on the different LSP versions show good properties systematically. Furthermore, the Anglo-Saxon version of the LSP-39 has shown predictive value for hospital readmission[23] and, in the Spanish version, for time of stay of the admission[24] and to predict legal incapacity[25]. These are hard measures of the disorder course, so that they would be a robust test of its validity.

Trauer et al. have obtained results that confirm that the LSP-39 is sensitive to detect changes[26]. We ignore if they have performed studies on predictive value and sensitivity to change in the 20 item version of the LSP.

The authors suggest using the 39 item version for research projects and the 20 item version for evaluation in real practice contexts[11]. The design and validation of instruments whose systematic use is feasible under real care conditions have great relevance. Acceptance by the clinicians of measurement instruments to be used routinely not only is related with their adequate psychometric qualities but also with their facility of management and clinical significance.

The LSP is an instrument that does not require sophisticated training to be used reliably since each item refers to a simple and objectivable behavior. The quickness with which the brief form is administered makes it recommendable for its routine use in clinical pictures of the real world. It may be useful to help individualize the objectives of rehabilitating interventions if the scores of each subscale are evaluated, according to the skills or disabilities of each person and to evaluate the results of the intervention in each case.

The capacity of the LSP to predict service utilization, such as admission, or other outcomes such as the likelihood of having legal problems, could give it a value as an instrument that contributes to evaluate the care model. Thus, if the routine use of the LSP-20 makes it possible to detect certain care needs, the implementation of programs to cover them could prevent undesired outcomes.

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