

Psychometric Evaluation of a New Instrument in Spanish to Measure Self-Care Requisites in Patients With Schizophrenia

Juan Roldán-Merino, PhD, RN, MHSN, Teresa Lluch-Canut, PhD, RN, MHSN, Manoli Menarguez-Alcaina, Bachelor of Nursing, RN, MHSN, Alexandrina Foix-Sanjuan, BSN, RN, MHSN, Josep Maria Haro Abad, MD, PhD, and QuestERA Working Group

Juan Roldán-Merino, PhD, RN, MHSN, is a Registered Nurse, Mental Health Specialistic Nursing, Professor of Psychiatric Nursing, Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain, Campus Docent Sant Joan de Déu-Fundació Privada, School of Nursing, University of Barcelona, Esplugues de Llobregat, Barcelona, Spain, and CIBERSAM (Centro de Investigación Biomédica en Red de Salud Mental), Sant Boi de Llobregat, Barcelona, Spain; Teresa Lluch-Canut, PhD, RN, MHSN, is a Registered Nurse, Mental Health Specialistic Nursing, Professor of Psychosocial and Mental Health Nursing, School of Nursing, University of Barcelona, Barcelona, Spain; Manoli Menarguez-Alcaina, Bachelor of Nursing, RN, MHSN, is a Registered Nurse, Mental Health Specialistic Nursing, Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain; Alexandrina Foix-Sanjuan, BSN, RN, MHSN, is a Registered Nurse, Mental Health Specialistic Nursing, Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain and CIBERSAM (Centro de Investigación Biomédica en Red de Salud Mental), Sant Boi de Llobregat, Barcelona, Spain; and Josep Maria Haro Abad, MD, PhD, is a Psychiatrist, Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain, and University of Barcelona, Barcelona, Spain, and group coordinator, CIBERSAM (Centro de Investigación Biomédica en Red de Salud Mental), Sant Boi de Llobregat, Barcelona, Spain

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Author contact:

jroldan@santjoandedeu.edu.es, with a copy to the Editor: gpearson@uchc.edu

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The authors report no actual or potential conflicts of interest

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PURPOSE: The purpose of this study was to develop and validate a new instrument in Spanish designed to measure self-care requisites in patients with schizophrenia treated in the community.

DESIGN AND METHODS: The first phase was conducted to develop the questionnaire through a panel of experts and evaluate for content validity. Psychometric evaluation was then conducted with a consecutive sample of 341 patients.

FINDINGS: The scale demonstrated good internal consistency and stability over time. The discriminant and convergent validity was satisfactory. The confirmatory factor analysis showed that the theoretical model fits the self-care requisites proposed by Orem's nursing theory from which it originated.

PRACTICE IMPLICATIONS: This scale is a valid and reliable instrument for use in clinical practice, guiding the nurse in developing the most appropriate care plan for each patient.

Schizophrenia is a mental disorder, usually of long duration, which causes disturbances of thought and perception, such as delusions, disorganization, hallucinations, abnormal behavior, and social isolation. It is a disease with an estimated median incidence (10–90% quantile) of 15.2 (7.7–43.0) cases per 100,000 individuals (McGrath, Saha, Chant, & Welham, 2008; McGrath et al., 2004). The symptoms of this illness usually begin between 12 and 25 years old, and they are associated with increased health care and social and financial costs, both for the patient and for his or her environment and society at large (Haro, Salvador-Carulla, Cabases, Madoz, & Vazquez-Barquero, 1998; Wu et al., 2005). Schizophrenia is among the most disabling mental illnesses, and according to the World Health Organization (WHO), mental disorders

such as depression, alcohol use disorders, and psychoses (e.g., bipolar disorder and schizophrenia) are among the 20 leading causes of disability worldwide (WHO, 2008). There are several studies that associate schizophrenia with difficulties in activities of daily life (Green, 1996; Honkonen, 1995; Klapow et al., 1997; Patterson et al., 1998). A recent study (Viertio et al., 2011) shows that difficulties in the activities of daily life are 2–12 times more common in people with schizophrenia than in those without psychotic disorders.

Self-care is defined as personal actions each individual undertakes to maintain life, health, and welfare, and consistently meet personal health needs (Taylor, 2007; Taylor, Renpenning, Geden, Neuman, & Hart, 2001). According to Dorothea E. Orem, self-care deficit occurs when a person and

the circumstances arising from their health generate a demand for therapeutic care which is beyond the capabilities of the person to perform the actions necessary to meet the self-care requirements (Orem, 2001). Moreover, self-care has been demonstrated to be an important predictor of positive, negative, and disorganized symptoms in people with schizophrenia (Usall et al., 2002; Vila-Rodriguez, Ochoa, Autonell, Usall, & Haro, 2011). Based on this theory, nurses are in a key position to promote self-care activities in patients with schizophrenia treated in the community. Therefore, it is important that these professionals have validated instruments that allow them to assess the ability of the individual to attend to self-care, and the knowledge and skills needed to carry it out, in order to design and develop the most appropriate care plan for each patient.

Most of the scales based on the theory of Dorothea E. Orem have not been designed specifically for patients with mental disorders (Denyes, 1988; Evers, Isenberg, Philipsen, Senten, & Brouns, 1993; Geden & Taylor, 1991; Kearney & Fleischer, 1979; McBride, 1991). These instruments have not routinely been validated for use in psychiatric patients, and they have a low sensitivity in determining whether an improvement in self-care behavior reflects a greater adherence to medication or better management of symptoms (Cutler, 2001). To this day, the Mental Health Self-Care Agency Relate Scale is the only instrument based on Orem's theory designed expressly for individuals with mental disorders, specifically depression (West & Isenberg, 1997). However, there is no evidence of its availability for use in subsequent studies or its possible translation into Spanish and validation therein. In addition, questionnaires that primarily assess self-care in psychiatric patients do not include the requisites and dimensions of the agency described by Orem (Burns & Patrick, 2007).

Therefore, the development of a questionnaire based on Orem's nursing theory would provide an instrument for assessing self-care for a population at special health risk that could benefit from education, planning, and appropriate attention to their needs.

The purpose of this study was to develop and validate the Self-Care Requisites Scale, SCRS (in Spanish, Escala de Requisitos de Autocuidado, ERA). This scale was designed to measure self-care requisites in patients with schizophrenia and based on Orem's nursing theory (Orem, 2001).

Methods

Design

Cross-sectional study conducted in two phases:

Phase 1: Development of the questionnaire. First, we conducted a review of the literature around Dorothea Orem's theory and agreed on a theoretical model to measure self-care requisites in patients with schizophrenia. Four nurses

participated as experts in nursing models and theories. After that, four clinical nurses with expertise in mental health identified the universal self-care requisites, the developmental self-care requisites, and the health deviation self-care requisites that may apply to these patients, and a pool of 79 items was generated. Third, the content validity index (CVI) developed by Lynn (1986) was used and evaluated by a panel of experts composed of eight nurses. Each rating was made on a 4-point response scale from 1 (not relevant) to 4 (highly relevant). The CVI for each item was determined by the proportion of experts who rated each item with a 3 or a 4. Items were retained if CVI was equal to or higher than 0.88. Fourth, once the final set of items was established, these items were grouped into the eight self-care requisites proposed by Dorothea Orem (maintenance of sufficient intake of air; maintenance of sufficient intake of water; maintenance of sufficient intake of food; provision of care associated with elimination process; maintenance of balance between activity and rest; maintenance of balance between solitude and social interaction; prevention of hazards to human life's well-being; and promotion of human functioning). The panel of experts decided to group the first three requisites into one dimension because the deficits to be evaluated are related to life processes such as air, water and food (factor), and the nature of the action (maintenance). Fifth, we conducted a pilot test with 30 subjects to assess the comprehension and feasibility of the instrument. The time spent completing the questionnaire was 20–30 min. Two questions were revised because two phenomena were measured in the same question.

The final scale was composed of 35 items and each item had five different specific responses that evaluated self-care deficit gradually from 1 (no deficit) to 5 (total deficit), and six dimensions corresponding to the eight self-care requisites of Orem, namely: maintenance of sufficient intake of air, water, food; provision of care associated with elimination process; maintenance of balance between activity and rest; maintenance of balance between solitude and social interaction; prevention of hazards to human life's well-being; and promotion of human functioning.

Phase 2: Validation of the psychometric properties of the ERA. Psychometric evaluation was then conducted with a sample of 341 patients with schizophrenia.

Participants and Setting

The data were collected from January 2006 to March 2008 in 10 mental health centers in Barcelona. Patients who met the following criteria were included: (a) diagnosis of schizophrenia according to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition; (b) age above 18 years; (c) regular contact with the mental health center; (d) clinically stable; and (e) willingness to participate in the study. Patients

with other medical conditions (intellectual disability, dementia, drug and alcohol abuse) were excluded from the study.

Instruments

Demographic data: A demographic form was used to collect descriptive data from the participants, including gender, age, marital status, employment status, diagnosis, time since diagnosis, and treatment.

SCRS (ERA): The ERA was designed to measure self-care requisites in patients with schizophrenia by interview. This scale is composed of 35 items with five possible specific responses from 1 (not deficit) to 5 (total deficit).

The Life Skills Profile (LSP) adapted to Spanish (Bulbena Villarrasa, Larrinoa, & Dominguez Panchon, 1992). This is a 39-item instrument with 4-point responses designed to assess the level of general function in daily activities in chronic psychiatric patients. A high score on this scale indicates a high level of general function or a low disability.

The Global Assessment of Functioning (GAF) scale (American Psychiatric Association [APA], 2003): The GAF is a numeric scale (0–100) used by mental health clinicians and physicians to subjectively rate the social, occupational, and psychological functioning of adults. The scale is presented and described in the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision. For the analysis, scale items were grouped into two categories: less than or equal to 50 and above 50. A GAF score of 50 or less indicates severe dysfunction (severe symptoms or severe difficulty in social, occupational, or school functioning) (Ruggeri, Leese, Thornicroft, Bisoffi, & Tansella, 2000).

Ethical Considerations

This study was approved by the ethics and research committee of Parc Sanitari Sant Joan de Déu. All participants were informed of the study's purpose and they signed the consent prior to entering the study.

Data Collection Procedures

The participants were included through consecutive sampling. After informed consent was obtained, each potential participant completed questionnaires that included a demographic data sheet, the GAF, and the two instruments (ERA, LSP) through two different readers. The ERA was administered to 328 participants 2 weeks later to determine test–retest reliability.

Data Analysis

The required sample size was estimated to be at least 340 with an alpha of 0.05, a precision of 0.05, and a Cronbach's alpha correlation of 0.70.

Data analyses were performed using SPSS for Windows 15.0 (SPSS Institute, Chicago, IL, USA). One-sample Kolmogorov–Smirnov Z tests were used to assess normality and descriptive statistics were used to summarize the scale. The item analyses included calculation of item means, standard deviations, percentage ceiling and floor effects, and corrected item-total correlation. The internal consistency reliability was evaluated using Cronbach's alpha coefficient. A coefficient alpha value of 0.70 or above was considered acceptable for this new scale. Test–retest reliability was examined within a 2-week time frame using the intraclass correlation coefficient (ICC) criteria. The convergent validity with the LSP was evaluated using Spearman's correlation coefficient and the discriminate validity with the GAF using *t* test because this variable was considered as two categories in terms of point values: < 50 and > 50.

Construct validity of the ERA was determined using confirmatory factor analysis (CFA). CFA models were estimated using structural equation modeling (EQS 6.1 for Windows, Multivariate Software, Inc., Encino, CA, USA). The generalized least squares parameter estimation method was used. This method has the same properties as the maximum likelihood method, although with less stringent criteria of normality, and it is mainly used for measuring ordinal items (Batista-Foguet, Coenders, & Alonso, 2004). Model fit was determined with several methods because diverse authors have suggested using a number of indicators to determine the fit of models (Bentler & Bonett, 1980; Bollen & Long, 1993). The statistics provided were the chi-square test, the ratio between chi-square and the degrees of freedom ($\chi^2/\text{d.f.}$), the goodness-of-fit index (GFI) values and adjusted goodness-of-fit indexes (AGFI), the root mean square error of approximation (RMSEA), the Bentler–Bonett normed fit index (BBNFI), and the Bentler–Bonett non-normed fit index (BBNNFI). The GFI, AGFI, BBNFI, and BBNNFI indexes can vary from 0 (poor fit) to 1 (perfect fit) and are not influenced by sample size in the way that χ^2 is. According to Browne and Cudeck (1993), a GFI of 0.80 or above indicates that the model fits the data well. The RMSEA reflects the extent to which the model approximates a reasonable fit, and values close to or below 0.08 are generally recommended. According to Hinkin (1995), $\chi^2/\text{d.f.}$ may be used when there is a ratio of 5 : 1 or less.

Results

The scales were completed by 341 participants. The demographic and clinical data of the participants are shown in Table 1. Briefly, more than half of the participants were male, the mean age was 45.5 years, and mean of years of evolution was 17.9 years. The majority was unmarried (66.9%), 70.6% had completed elementary and/or secondary studies, and only 7.6% held a job. Approximately half was taking oral and

Table 1. Sociodemographic and Clinical Characteristics of the Study Sample ($n = 341$)

	<i>n</i>	%
Mean age (years)	45.5 (<i>SD</i> 11.6)	
Sex		
Male	228	66.9
Female	113	33.1
Marital status		
Unmarried	228	66.9
Married	42	12.3
Separated	30	8.8
Divorced	10	2.9
Widower	15	4.4
Unknown	16	4.7
Level of education		
Illiterate	6	1.8
Uncompleted elementary studies	59	17.3
Elementary and /or secondary studies	241	70.6
College	9	2.6
Unknown	26	7.7
Employment status		
Has an active job	26	7.6
Retired	14	4.1
Unemployed	25	7.3
On sick leave	5	1.5
Homemaking	28	8.2
Has disability	227	66.6
Unknown	16	4.7
Medication		
Just takes oral medication	116	34.0
Takes oral and parenteral medication	157	46.0
Takes only parenteral medication	61	17.9
Has no scheduled medication	4	1.2
Has scheduled medication but does not take it	3	0.9
Years of evolution	17.9 (<i>SD</i> 9.4)	
GAF		
Less than or equal to 50	266	78.0
Above 50	75	22.0
Total	341	100

GAF, Global Assessment of Functioning scale; *SD*, standard deviation.

parenteral medication and 78.0% had a GAF score equal to or less than 50.

Item Analysis

The mean item value ranged from 1.25 to 3.28 and the standard deviation ranged from 0.62 to 1.85. The item with the highest percent ceiling rankings was item 2 (*tobacco consumption*) (46.6%) and the items with the highest percent floor ranking were item 22 (*compliance with visits*) (83.6%) and item 7 (*difficulty in controlling urinary sphincter*) (73.9%) (Table 2).

Reliability

Cronbach's alpha was satisfactory for three of the six subscales or dimensions and ranged from 0.100 to 0.807

(Table 3). The internal consistency of the total ERA scale yields an alpha of 0.873, which indicates that 35-item ERA has a good internal consistency. Most of the 35-item ERA had item-total correlations >0.20 . Only four items had corrected item-total scale correlation coefficients <0.20 (items 2, 7, 8, and 25). These items were *tobacco consumption*, *difficulty in controlling urinary sphincter*, *difficulty in controlling fecal sphincter*, and *stimulant beverage consumption*, respectively (Table 2).

ICC analysis demonstrated that the 2-week test–retest reliability was 0.90 (95% confidence interval 0.88–0.92, $n = 328$) and was satisfactory for the six subscales or dimensions (Table 3).

Convergent and Discriminant Validity

The Spearman's correlation coefficient within the two scales (ERA and LSP) was -0.50 (95% confidence interval -0.59 to -0.47) and the mean ERA score was higher in patients with a GAF score <50 ($p = .0001$), indicating good convergent and discriminant validity. Table 4 shows the mean of the six dimensions corresponding to the eight self-care requisites of scale ERA at two GAF scale levels. All values were statistically significant ($p < .05$)

Construct Validity

The result of the chi-square test was significant ($\chi^2 = 2577.68$; $p < .0001$), indicating that the hypothesis of a perfectly fitted model should be rejected. However, considering the problems associated with the application of this test alone, it was considered that other statistics were needed to assess the model. The value for RMSEA was 0.07, which is below the recommended critical limit of 0.08. The $\chi^2/\text{d.f.}$ ratio was equal to 4.78, which is within the acceptable value for this ratio, up to a maximum of 5. The GFI and AGFI indexes were also within the recommended ranges, yielding values of 0.892 and 0.873, respectively. The value for BBNFI was 0.67 and for BBNFI was 0.721. According to the results presented above, the model proposed for the factors fitted the data satisfactorily (Table 5).

The parameters estimated by the model were all significantly different from zero, except for the 8 and 25 (*difficulty in controlling fecal sphincter* and *stimulant beverage consumption*, respectively) (Table 6). Only five items had loads under 0.30 in the factor analysis.

Discussion

We developed and validated a rating scale to measure self-care requisites in patients with schizophrenia treated in the community, based on Orem's theory. Our instrument covers all aspects of self-care requisites.

Table 2. Descriptive Statistics of the Items of the Scale (ERA)

Summary of the contents of the items	<i>M</i>	<i>SD</i>	% Floor	% Ceiling	Corrected item— total correlation
1. Ability to carry out physical activities	1.71	0.93	53.7	0.6	.326
2. Tobacco use	3.28	1.85	37.2	46.6	.193
3. Individual drinks enough liquid	2.38	1.35	33.7	12.6	.215
4. Knowledge of balanced diet	2.47	1.25	28.7	6.7	.435
5. Adequate supply of food	2.66	1.27	22.3	10.0	.365
6. Knowledge of the task of preparing meals	2.58	1.29	27.6	8.2	.420
7. Difficulty in controlling urinary sphincter	1.62	1.18	73.9	5.0	.170
8. Difficulty in controlling fecal sphincter	1.66	1.05	65.4	0.9	-.002
9. Knowledge of how to maintain a healthy home	2.01	1.14	46.3	2.6	.544
10. Ability to do household chores	2.25	1.29	40.5	6.5	.601
11. Degree of motivation to perform chores	2.28	1.30	38.7	6.7	.602
12. Degree of compliance of activities outside home	2.21	1.31	42.8	7.6	.497
13. Degree of motivation to perform activities	2.23	1.32	41.9	7.6	.547
14. Difficulty falling asleep	2.06	1.33	51.6	7.6	.386
15. Degree of social interaction	2.16	1.13	37.8	1.5	.548
16. Degree of relationship satisfaction	2.16	1.20	39.6	3.5	.489
17. Difficulty in maintaining relationships	2.41	1.31	33.7	6.7	.429
18. Ability to maintain proper hygiene	2.31	1.36	40.5	9.4	.579
19. Use of appropriate clothing	2.00	1.20	48.4	4.4	.601
20. Recognition of symptoms of illness and ability to seek help	2.65	1.33	25.2	10.9	.321
21. Degree of drug compliance	1.80	1.04	55.1	2.1	.436
22. Degree of compliance with follow-up visits	1.25	.62	83.6	0.0	.249
23. Consumption of toxic substances	2.03	1.38	55.4	10.6	.243
24. Recognition of risks of substance abuse	2.58	1.23	21.7	8.2	.403
25. Consumption of stimulant drinks	2.53	1.25	23.8	9.7	.141
26. Knowledge of risks and methods to prevent sexually transmitted diseases	2.26	1.49	45.7	16.4	.280
27. Use of methods to prevent sexually transmitted diseases	2.06	1.42	55.4	11.7	.323
28. Anxiety when performing activities of daily life	2.59	1.37	30.8	10.3	.358
29. Anxiety when meeting people	2.24	1.20	37.2	4.1	.427
30. Skills to manage financial resources	2.77	1.57	32.8	22.0	.371
31. Satisfaction with development of role	2.31	1.31	36.1	8.8	.386
32. Difficulty in assuming role	2.62	1.26	23.5	7.6	.361
33. Difficulty making own decisions	2.37	1.21	30.8	5.0	.482
34. Ability to cope with new social situations	2.29	1.43	46.0	10.0	.417
35. Degree of motivation to learn new healthy behaviors	2.66	1.53	33.4	18.2	.322

ERA, self-care scale requirements; SD, standard deviation.

Table 3. ERA Scale: Cronbach's Alpha Coefficient and ICC Test–Retest

Self-care requirements	Cronbach's alpha	ICC	CI 95%
Requirements I, II, and III. Maintenance of sufficient air, water, and food intake (items 1, 2, 3, 4, 5, and 6)	0.450	0.858	0.823–0.885
Requirement IV. Provision of care associated with elimination process (items 7 and 8)	0.100	0.815	0.770–0.851
Requirement V. Maintenance of balance between activity and rest (items 9, 10, 11, 12, 13, and 14)	0.807	0.832	0.791–0.865
Requirement VI. Maintenance of balance between solitude and social interaction (items 15, 16, and 17)	0.807	0.748	0.687–0.797
Requirement VII. Prevention of hazards to human life well-being (items 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29)	0.711	0.879	0.850–0.903
Requirement VIII. Promotion of human functioning. (items 30, 31, 32, 33, 34, and 35)	0.618	0.823	0.780–0.858
Total	0.873	0.906	0.883–0.924

CI, confidence interval; ERA, self-care scale requirements; ICC, intraclass correlation coefficient.

Table 4. ERA Scale: Discriminate Validity

Self-care requirements	GAF ≤ 50 (M.SD)	GAF > 50 (M.SD)	p*
	n = 266	n = 75	
Total score	81.5 (19.8)	71.9 (16.9)	.0001
Requirements I, II, and III. Maintenance of sufficient air, water, and food intake (items 1, 2, 3, 4, 5, and 6)	15.3 (4.1)	14.1 (4.1)	.026
Requirement IV. Provision of care associated with elimination process (item 7 and 8)	3.3 (1.6)	2.8 (1.3)	.008
Requirement V. Maintenance of balance between activity and rest (items 9, 10, 11, 12, 13, and 14)	13.4 (5.6)	11.8 (4.8)	.034
Requirement VI. Maintenance of balance between solitude and social interaction (items 15, 16, and 17)	7.0 (3.1)	5.6 (2.6)	.001
Requirement VII. Prevention of hazards to human life well-being. (items 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29)	26.7 (7.4)	24.7 (7.0)	.036
Requirement VIII. Promotion of human functioning (items 30, 31, 32, 33, 34, and 35)	15.7 (4.8)	12.6 (4.2)	.0001

*Student's *t* test. ERA, self-care scale requirements; GAF, Global Assessment of Functioning scale; SD, standard deviation.

The need for an instrument like ours was highlighted by a literature review that detected other measuring instruments that included self-care but were not specifically designed to assess self-care. In addition, questionnaires that assess primarily the self-care do not include the requisites and the dimensions of the agency described by Orem. The only instrument based on Orem that was validated in patients with depression was the Mental Health Self-Care Agency Relate Scale. There is no evidence of its availability for use in subsequent studies or possible translation into Spanish and validation.

The psychometric characteristics of the ERA scale were good. In evaluating the internal consistency of this scale, the Cronbach's alpha coefficient was 0.87. When the aim is to develop a measurement tool, the minimal acceptable reliability is suggested to be 0.70 (Bland & Altman, 1997; Nunnally & Bernstein, 1994) and a coefficient greater than 0.90 indicates duplication among items (DeVellis, 2003; Jaju & Crask, 1999). Given these guidelines, the ERA scale showed good internal consistency. In the different subscales, the lowest value of this coefficient was in dimension 1 (*maintenance of sufficient intake of air, water, and food*) and dimension 2

Table 5. Goodness-of-Fit Indices of Model Confirmatory

Index	Value
BBNFI	.670
BBNNFI	.721
GFI	.892
AGFI	.873
RMSEA	.07
Cronbach's alpha	.877
Goodness-of-fit test	$\chi^2 = 2577.68$; d.f. = 539; $p < .0001$
Reason for adjustment	$\chi^2/\text{d.f.} = 4.78$

AGFI, adjusted goodness-of-fit index; BBNFI, Bentler-Bonett normed fit index; BBNNFI, Bentler-Bonett non-normed fit index; d.f., degrees of freedom; GFI, goodness-of-fit index; RMSEA, root mean square error of approximation.

Table 6. Factor Loadings Derived From the LS Estimation Confirmatory Factor Analysis (λ_{ij})

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
1	.322*					
2	.212*					
3	.223*					
4	.484*					
5	.401*					
6	.492*					
7		.999*				
8		.033				
9			.688*			
10			.769*			
11			.764*			
12			.592*			
13			.654*			
14			.441*			
15				.859*		
16				.733*		
17				.709*		
18					.712*	
19					.728*	
20					.376*	
21					.490*	
22					.287*	
23					.305*	
24					.483*	
25					.137	
26					.330*	
27					.362*	
28					.377*	
29					.465*	
30						.443*
31						.504*
32						.460*
33						.589*
34						.509*
35						.389*

* $p < .05$. LS, least squares.

(*provision of care associated with elimination process*), with an item-total correlation coefficient corrected also lower than 0.20 in dimension 2 (Clark & Watson, 1995). This dimension consists of two items, while using Cronbach's coefficient expresses the internal consistency of three or more items (Hinkin, 1995). These two dimensions measure self-care requisites in different processes related to life, so that an alteration in one of these requisites does not necessarily imply an alteration in the other. Furthermore, the ICC shows that the scale presented a good stability test-retest and fell within the recommended range of 0.81–1.0 (Bakas, Champion, Perkins, Farran, & Williams, 2006). The main problem with evaluating test-retest is the choice of an appropriate time interval between the two assessments. If the time is too long there may be changes in the variables to be measured, but if it is too short the patients may remember the answers from the first assessment. The interval usually depends on the type of test questions, but it normally falls between 2 and 14 days (Streiner & Norman, 2003). This study was performed at 15 days, so we understand that respondents may not have been influenced by the answers of the first test.

Item 22 (*compliance with visits*) and item 7 (*difficulty in controlling urinary sphincter*) were the items with the highest percent floor ranking as a result of good performance status in some dimensions in these patients treated in the community. Because these items provided essential information, they were included in the 35-item ERA even though they had higher floor effects than the other items.

In the present study, the factorial analysis showed six factors or latent variables and the discriminate and convergent validity were good. The higher ERA score for patients with GAF score <50 provides support for discriminate validity, and convergent validity showed a correlation with the LSP scale. This could be due to the fact that impaired self-care requisites lead to an alteration of function in activities of daily life, and instrumental and impaired social and occupational activities.

The use of CFA has showed that the theoretical model fit the self-care requisites proposed by Orem's nursing theory (six dimensions) and supported by both literature and experts' opinions.

There were two items with a low but not statistically significant load factor. One of these was item 8 (*difficult in controlling fecal sphincter*) while the other item was 25 (*stimulant beverage consumption*). Both items should be reviewed in a later version of the scale and above all the number of items of factor or dimension 2 (*provision of care processes of elimination*) should be extended.

A possible limitation of this study is that the sample used is a population from a given area of Catalonia (Barcelona province), and may not be representative of all Catalonia or other provinces of Spain. But other studies in patients diagnosed with schizophrenia in Spain and treated in the community

(Ciudad et al., 2008; Gabaldón Poc et al., 2010) showed that the sociodemographic and clinical characteristics were very similar to those of the sample used in this study.

In conclusion, the ERA is a valid instrument that can be used to measure the self-care requisites in patients with schizophrenia treated in the community. It may be a valuable measurement, based on Orem's nursing theory, for use in clinical practice, guiding the nurse in developing the most appropriate care plan for each patient. It may be particularly helpful for targeting and monitoring this care plan. It is important to assess the self-care requisites in patients with schizophrenia in the community and help them, encouraging compliance with health care and the individual's ability to lead an independent life and decreasing the caregiver's burden. Continued evaluation is required to verify the applicability of the instrument in subsequent studies so as to be able to assess the sensitivity to change to complete validation and predictive validity. Furthermore, this scale could be validated in other populations, as well as in hospitalized patients diagnosed with schizophrenia, and in a variety of cultures.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Self-Care Requisites Scale (Escala de Requisitos de Autocuidado [ERA]).