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Evidence of psychometric adequacy of the Spanish Adaptation of REE: Recovery Enhancing Environment

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Introduction. In this study we present the process and results of the Spanish adaptation and validation of REE (Recovery Enhancing Environment), an instrument designed to assess the personal process of recovery and the recovery orientation of mental health services.

Methodology. The Spanish REE version has been completed by a representative sample of the Severe Mental Disorder (SMD) program users in the Mental Health Services of Biscay (n=312).

Results. The validity evidence of each section (importance of recovery elements, experience of recovery elements, organizational climate and recovery markers) of the REE has shown unidimensionality of the scale, with suitable indexes in the factorial analyses and Cronbach alphas greater than .90 for each dimension. Moreover, significant correlations have been found between REE and its dimensions, and with other instruments that measure severity, functionality and quality of life.

Conclusions. The adequacy of the psychometric properties of the REE make it an interesting instrument to assess the different indicators related to the recovery model, especially if the scarcity of available instruments is taken into account.

Keywords: Recovery Model, Recovery Assessment, Mental Health Services, Psychometric Research, Severe Mental Disorders

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Evidencias de adecuación psicométrica de la adaptación española del REE: Cuestionario de Evaluación del Desarrollo de Entornos Favorables para la Recuperación

Introducción. En el presente estudio se presentan el proceso y los resultados de la adaptación al castellano y la validación de REE (*Recovery Enhancement Environment*), una herramienta diseñada para evaluar tanto el proceso personal como la orientación de los servicios asistenciales hacia la recuperación.

Metodología. La versión española de REE fue completada por una muestra representativa de usuarios atendidos en el programa Trastorno Mental Grave (TMG) de la Red de Salud Mental de Bizkaia (n=312).

Resultados. Las evidencias de validez de cada una de las secciones (importancia de los componentes de recuperación, experiencia de los componentes de recuperación, clima organizacional y marcadores de recuperación) del REE han mostrado unidimensionalidad con índices adecuados en los análisis factoriales, siendo las puntuaciones de consistencia interna de cada una de las dimensiones superiores a 0,90. Asimismo, se han encontrado correlaciones significativas entre el REE y sus dimensiones, y con otros instrumentos que evalúan gravedad, funcionalidad y calidad de vida.

Conclusiones. La adecuación del comportamiento de las evidencias psicométricas del REE lo convierten en un instrumento de interés para la evaluación de diferentes indicadores en relación al modelo de recuperación, más aún dada la escasez de herramientas disponibles.

Palabras clave: Modelo de Recuperación, Evaluación de la Recuperación, Servicios de Salud Mental, Estudio Psicométrico, Trastorno Mental Grave

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INTRODUCTION

The autonomy and participation of people suffering from severe mental health problems in their own recovery process¹ are increasingly being considered in the assistance policies of mental health systems². There are commonly accepted definitions of the concept and model of recovery, which is understood as a process carried out by the person in order to live a satisfactory life, despite the limitations of the disease³. However, there is no clear consensus about the dimensions of the process itself and its relative significance⁴. As a consequence, it is difficult to move to its practical implementation⁵ and to choose the appropriate instruments for its assessment⁶, since there is great variability of scales for it⁷.

In the case of the Spanish language, very few instruments for the evaluation of both the recovery process and the orientation of services have been adapted into Spanish⁸, despite the fact that the personal recovery model is present in strategic mental health plans⁹, both at the national and regional level.

The Recovery Enhancement Environment Measure (REE) was designed in 2004 by Ridgway and Press in the USA, in order to evaluate the recovery model, taking into account the perspectives of users of mental health services¹⁰. It is an instrument for assessing recovery factors and the way in which service users perceive that these factors favour the above mentioned services, providing organizations with useful information about the recovery process of users and about their recovery-oriented services and care practices. Information about the organizational climate and about recovery markers that refer to the recovery process at an individual level is also collected¹⁰.

The measure has been adapted for the United Kingdom as DREEM¹¹ - Developing Recovery Enhancing Environment Measure - and has been used to measure its oriented practice^{12,13}. For example, Bass, Tickle and Lewis have used this instrument to evaluate the recovery model in three rehabilitation units from the perspective of users and caregivers¹⁴. Ayres, Fegan and Noak have also evaluated the evolution of the organizational climate of workers and the recovery process of users in a prison hospital, by taking measures at two different stages¹⁵. The Italian version has also been developed¹⁶.

This study evaluates the psychometric adequacy of the Spanish adaptation of the Recovery Enhancing Environments Measure (REE), with the aim of providing a useful instrument for evaluating both the process of personal recovery and the orientation of mental health services towards a recovery that takes places in our environment.

METHOD

Sample selection process

A multicentre observational study has been conducted on a representative sample of people (n=312) that were treated in the Severe Mental Disorder Program of the Mental Health Network of Bizkaia. Based on the registration of active cases during 2016 (n=1949), a random and stratified sampling was designed according to gender, age and care resource. The sample obtained for a 95% confidence interval represents a sampling error of 5.1%. The inclusion criteria that were considered were the legal age and being within the Severe Mental Disorder Program of the Mental Health Network of Bizkaia. The following exclusion criteria were considered: the absence of informed consent from the patient or from his/her legal guardian, alterations in language or communication and clinical status that prevented their collaboration. This study was approved by the Clinical Research Ethics Committee of the Basque Autonomous Community.

Participants

The sample was composed primarily of men (60.6%), with an average age of 49.17 years (SD=10.97, minimum age 22 years, maximum 80), and recruited in Outpatient Mental Health Centres (MHC, n=194), Day Hospitals (DH, n=75), Assertive Community Treatment Teams (ACT, n=22) and Hospital Rehabilitation Units (n=21).

The most frequent diagnosis was schizophrenia (56.1%), followed by bipolar disorder (12%) and schizoaffective disorder (8.9%), with an average of 17.37 years spent in treatment (SD=8.70; range 1-45). 75.6% of the patients had been hospitalized throughout their evolution process, with an average of 6.65 hospitalizations (SD=8.34). 78.2% of the cases had some sort of disability, with an average of 65.18% (SD=9.48). Likewise, 68.3% had no recognized level of dependence. 53.8% live with their families, 35.1% live on their own and 3.8% live in supervised accommodation. Table 1 shows the socio-demographic characterization data based on care facilities.

Procedure

The variables used included socio-demographic data (see Table 1) and data about history of disease (diagnosis according to ICD-10 criteria, number of years since first contact with mental health services, number of hospitalizations during the years spent in the program and number of days of hospitalization in the last two years), about clinical as-

Table 1		Descriptive statistics and contrast test of the sociodemographic variables in relation to type of care center											
		Total (n=312)		OMHC (n=194)		DH (n=75)		ACT (n=22)		HRU (n=21)		F	P
		M	SD	M	SD	M	SD	M	SD	M	SD		
Age		49.17	10.97	50.71	10.99	46.85	8.80	50.95	12.24	41.43	12.35	5.546	0.001
		n	%	n	%	n	%	n	%	N	%	χ^2	p
Sex													
	Male	189	60.6	114	58.8	47	62.7	14	63.6	14	66.7	0.81	0.845
	Female	123	39.4	80	41.2	28	37.3	8	36.4	7	33.3		
Marital Status													
	Single	215	68.9	124	63.9	59	78.7	15	68.2	17	81.0	16.24	0.367
	Married	40	12.8	33	17.0	3	4.0	2	9.1	2	9.5		
	Divorced	27	8.7	18	9.3	5	6.7	3	13.6	1	4.8		
	Widower	13	4.2	9	4.6	3	4.0	1	4.5	0	0.0		
	Separated	10	3.2	4	2.1	4	5.3	1	4.5	1	4.8		
	Others	7	2.2	6	3.1	1	1.3	0	0.0	0	0.0		
Studies													
	Without studies	16	5.1	12	6.2	2	2.7	2	9.1	0	0.0	25.83	0.040
	Primary education	131	42.0	88	45.4	26	34.7	11	50.0	6	28.6		
	Secondary education	59	18.9	31	16.0	20	26.7	2	9.1	6	28.6		
	Professional training	69	22.1	36	18.6	23	30.7	2	9.1	8	38.1		
	University studies	36	11.5	23	13.4	4	5.3	5	22.7	1	4.8		
	Others	1	0.3	1	0.5	0	0.0	0	0.0	0	0.0		
Employment status													
	Working	43	13.8	34	17.5	5	6.7	3	13.6	1	4.8	41.12	0.005
	Leave of work	7	2.2	3	1.5	1	1.3	0	0	3	14.3		
	Retired	51	16.3	35	18.0	9	12.0	5	22.7	2	9.5		
	Student	14	4.5	8	4.1	5	6.7	0	0	1	4.8		
	Unemployed	56	17.9	30	15.5	12	16.0	6	27.3	8	38.1		
	Housework	26	8.3	19	9.8	4	5.3	1	4.5	2	9.5		
	Long term disability	97	31.1	55	28.4	32	42.7	6	27.3	4	19.0		
	Others	18	5.8	10	5.2	7	9.3	1	4.5	0	0.0		
Work before the disorders													
	Yes	248	79.5	160	82.5	54	72.0	16	72.7	18	85.7	6.74	0.081
	No	54	17.3	26	13.4	19	25.3	6	27.3	3	14.3		
	Missing	10	3.2	8	4.1	2	2.7	0	0.0	0	0.0		

Table 1	Continuation											
	Total (n=312)		OMHC (n=194)		DH (n=75)		ACT (n=22)		HRU (n=21)		χ ²	p
	n	%	n	%	n	%	n	%	N	%		
Living situation												
Family	204	65.7	132	68.0	45	60.0	14	63.6	13	61.9	8.29	0.505
Autonomous	70	22.4	42	21.8	18	24.0	7	31.8	3	14.3		
Supported Housing	23	7.4	12	6.2	8	10.7	0	0.0	3	14.3		
Others	14	4.5	7	3.6	4	5.3	1	4.5	2	9.5		
Missing	1	0.3	1	0.5	0	0.0	0	0.0	0	0.0		

OMHC: Outpatient Mental Health Centers; DH: Day Hospitals; ACT: Assertive Community Treatment; HRU: Hospital Rehabilitation Units

assessment/evolution and about recovery (see instruments). The information provided by these instruments was collected by related clinicians, within a 15 day timeframe after the REE interview, which aimed at assessing recovery. This interview was carried out by four people with personal experience in the recovery process and in the use of mental health services as users. They received prior training on the concept of recovery, on the use of REE and on interview skills, including aspects such as confidentiality.

Instruments

The REE (Recovery Enhancing Environment Measure¹⁰) or 'Cuestionario de Evaluación del Desarrollo de Entornos Favorables para la Recuperación' in its adaptation into Spanish, was collected both in an auto-applied way and in a hetero-applied way, equitably, except in the cases in which the characteristics of the participant suggested the hetero-applied way due to a greater need of support from the interviewer. A Likert-type scale is used (between 4 = strongly agree and 0 = strongly disagree), where higher scores indicate greater importance.

The interviewee initially evaluates the *relative importance* attached to each of the 24 factors or elements related to recovery, as well as the personal perception of the performance and functioning of professionals and services in the field of said elements.

There is a section for the *evaluation of specific needs* that includes cultural minorities, substance addictions, childhood abuse and/or trauma, non-heterogenderual genderual orientation and care of dependent children.

The *organizational Climate* is assessed through 14 items that measure aspects or qualities of the environment

that have been identified as important in promoting resilience or the ability to recover from adversity, as well as users' *feedback* about the centre itself.

By using 24 items, the *recovery markers* evaluate the moment of personal recovery in which service users are.

In the validation process of the original questionnaire written in English, the Cronbach's alpha (α) of the subscale that refers to the 24 components of the recovery is .94, and that of its elements ranges from .72 to .87. The average correlation of the items of each component is .61, and .44 among all the items. For subscales regarding special needs, the α values were greater than or equal to .88. Lastly, the organizational climate was .97¹⁰.

The Spanish translation process was carried out using direct and reverse translation methodology (forward-backward translation)¹⁷. It included the translation into Spanish, the proofreading of the content of the instrument and a subsequent inverse translation into the original language (English) that was reviewed by the author of the original version. For the Spanish version, the item referring to ethnicity was deleted, as it was not a relevant item in our social context.

For the severity and clinical evolution, the CGI - Clinical Global Impression questionnaire was used^{18,19}. It consisted of two Likert-type subscales with eight options ranging from 0 (not evaluated) to 7 (extremely ill / much worse).

The GAF - Global Assessment of Functioning^{20,21} was used for the overall functioning. It is part of the V axis of the multiaxial diagnosis of the DSM, proposed by the APA²². Psychological, social and work activity should be considered through an item rated between 1 (severely disabled) and 100 (maximum functionality).

Severity was assessed using the HoNOS scale^{23,24}. It consists of 12 items grouped into four areas: behavioural problems (1-3), deterioration (4-5), clinical problems (6-8) and social problems (9-12). Each item is scored on a five-point scale, from 0 (no problem) to 4 (severe problem), with a maximum score of 48; the higher the score, the greater the severity.

Health-related quality of life was assessed using the visual analogue scale (VAS) implemented in the Euro-QoL-5D^{25,26}. It ranges from 0 ('worst imaginable state of health') to 100 ('best imaginable state of health') and the person indicates the point that best reflects the overall state of health on the day of administration²⁷.

Statistical analysis

The psychometric characterization analyses of the REE have been carried out circumscribing them separately to each of the four sections that compose it. Sections II, III and IV, consisting of 15, 14 and 24 items, respectively, allow us to obtain three recovery indicators that refer to 'Specific needs', 'Organizational climate' and 'Recovery markers'. Section I, 'Components or elements of recovery', differentiates two areas, allowing two indicators to be obtained: the assessment of the importance attributed by the participant to 24 theoretically identified components (24 items) and the participant's perception of how professionals and services help to achieve these 24 components (72 items, three items per component).

Confirmatory Factor Analysis (CFA) techniques were applied to test the one-dimensional nature of each of the REE sections separately. In the case of the 'importance' area in section I and the three remaining sections, the CFA was carried out on the polychoric correlation matrix, since these items are represented on the Likert scale. In the case of the 'experience' area in section I, it was carried out on the Pearson product-moment correlation matrix, as these were factor scores obtained in the previous procedure. From the correlation matrix, asymmetry and multivariate kurtosis and its deviation from normality were calculated using the Mardia coefficient ($<.5$). For the evaluation of the adjustment of the CFA models, the estimation of parameters was carried out using the weighted least squares method, estimating their goodness-of-fit with the Chi-squared test (χ^2). Given that the Chi-square is generally affected by the sample size and the lack of normality^{28,29}, the robust methods of Satorra-Bentler²⁹ were applied for the estimation and other complementary indexes of goodness-of-fit were requested²⁸: the normed Chi-square (χ^2/df), which is considered to be a good indicator if the value ranges between 1 and 3; the Root Mean Square Error of Approximation (RMSEA) and its 90% confidence interval, where values $<.05$ are considered to be

appropriate and values $<.08$ are considered to be acceptable; the Comparative Fit Index (CFI) and the Bentler-Bonnet Normed Fit Index (BB-NFI), appropriate for values $>.90$.

Finally, in order to associate the dimensions of the REE between themselves and to associate them with other clinical constructs, Pearson's correlation analysis was used, so that evidence of its concurrent validity could be obtained.

RESULTS

The 312 participants responded to REE through an interview, with a practically total completion (the highest percentage of an unanswered item was 1.6% [5 cases]), except in the 'special needs' section. This section should only be answered if a special need exists: racial, ethnic or cultural background ($n=7$), alcohol/drug problems ($n=49$), physical/genderual abuse ($n=60$), genderual orientation ($n=15$) and dependent children ($n=79$).

The set of items that composed each REE section was analysed separately and using the same analysis structure (Tables 2 to 5).

Psychometric evidence from the 'Importance' of recovery components section

Table 2 presents the data about the distribution of responses given to each of the 24 items that composed the scale and its total dimensions, its descriptive statistics (M, SD, As and k), the correlation value of the item towards the total of the scale (r), the reliability coefficient of the scale if the item were removed (α) and the commonality of the item (h^2). For the whole set of items, average values greater than or close to 3 are observed for a range of 0 to 4. Therefore, a high presence of negative asymmetry is found in the distribution of responses. Only four items have a differential distribution that reflects an attributed lower importance (Support to other patients, Challenging stigma, Spirituality, and Intimacy and sexuality). The total scale has an internal consistency coefficient of .90, and the removal of any of the items wouldn't allow improving this value. Altogether, the item-scale correlation is above .30 (except for the item of religious beliefs, $r=.16$, and challenging stigma and discrimination, $r=.24$), and the communalities reach values close to or greater than .45. Factorial analyses were used to corroborate the dimensionality of the scale. The Velicer's Minimum Average Partial (MAP) and Parallel tests showed that the best factor solution was the retention of a single factor. The first factor showed an eigenvalue 12.52 with an explained variance of 52.19%. The values of the second and third factors were 1.10 and .99, with an explained variance of 4.62% and 4.14%. These two factors differ considerably

from the first by more than triple its value (12 vs 1). As a consequence, the one-dimensional construct is supported as the best factorial solution. A CFA was conducted on the polynomial matrix of correlations, using an estimation of Weighted Least Squares, given the multivariate asymmetry that was observed (Mardia=195.45). The adjustment indexes ($\chi^2_{SB(252)}=350.93$; $p<.001$; CFI=.978; BB-NFI=.928; RM-

SEA=.036) show that data adequately reproduce the theoretical one-dimensional model, with factorial loadings ranging between .16 and .76. Only two items, 17I-religious beliefs- ($\lambda=.16$) and 19I-challenging stigma- ($\lambda=.25$), show factorial loadings below .30. In the first case it is not statistically significant ($p=.137$), which would suggest dispensing with that item.

Items	Scores						M	SD	As	k	r	α	h ²
	0	1	2	3	4	Miss							
Having a positive sense of identity	1.0	1.3	3.8	46.8	46.8	0.3	3.38	0.71	-1.56	4.48	0.44	0.90	0.61
Having a sense of meaning in life	1.0	0.6	3.5	41.0	53.2	0.6	3.46	0.69	-1.73	5.31	0.57	0.90	0.70
Having hope	1.0	1.0	2.2	41.0	54.5	0.3	3.48	0.69	-1.85	5.97	0.58	0.90	0.56
Having up-to-date knowledge	0.3	7.4	15.1	48.1	29.2	0.0	2.98	0.88	-0.75	0.17	0.35	0.90	0.43
Self-manage symptoms/avoid relapse	0.6	1.6	3.5	42.6	51.6	0.0	3.43	0.70	-1.56	4.04	0.55	0.90	0.63
Improving general health and wellness	0.3	1.0	1.6	43.9	52.9	0.3	3.49	0.62	-1.36	3.95	0.67	0.90	0.60
Being active and directing recovery	0.3	3.2	7.1	48.7	40.4	0.3	3.26	0.75	-1.11	1.75	0.62	0.90	0.47
Having rights respected and upheld	0.6	1.6	5.8	46.8	45.2	0.0	3.34	0.72	-1.30	2.98	0.70	0.90	0.56
Mutual self-help and peer support	3.5	11.5	14.1	44.6	26.3	0.0	2.79	1.07	-0.84	0.05	0.35	0.90	0.60
Being involved in meaningful activities	0.6	4.2	7.7	44.6	42.3	0.6	3.25	0.82	-1.23	1.76	0.64	0.90	0.52
Being involved and part of community	2.2	2.5	6.1	44.9	42.9	0.3	3.23	0.89	-1.56	2.99	0.67	0.89	0.59
Having positive relationships	1.0	2.6	5.1	40.4	51.0	0.0	3.38	0.78	-1.59	3.43	0.63	0.90	0.56
Identifying and building on strengths	0.0	2.2	5.4	44.9	46.8	0.6	3.37	0.69	-1.06	1.36	0.71	0.89	0.61
Developing new skills	0.0	5.4	11.2	51.3	32.1	0.0	3.10	0.80	-0.82	0.52	0.59	0.90	0.61
Having basic needs met	0.6	1.9	3.8	42.9	50.6	0.0	3.41	0.72	-1.53	3.74	0.57	0.90	0.46
Having sense of control/empowered	0.3	2.2	3.2	46.2	48.1	0.0	3.39	0.69	-1.35	3.07	0.61	0.90	0.61
Spirituality	14.7	26	17.0	23.1	19.7	0.0	2.06	1.36	-0.03	-1.27	0.16	0.91	0.52
Taking on/succeeding in social roles	0.0	2.6	6.1	45.8	45.5	0.0	3.34	0.71	-1.04	1.27	0.73	0.89	0.66
Challenging stigma and discrimination	7.4	22.8	11.2	34.9	23.7	0.0	2.45	1.28	-0.41	-1.07	0.24	0.91	0.66
Taking on new challenges	1.3	5.8	9.6	46.2	36.9	0.3	3.12	0.90	-1.16	1.36	0.56	0.90	0.60
Having positive role models	1.0	5.1	10.6	51.3	31.7	0.3	3.08	0.84	-1.06	1.41	0.49	0.90	0.47
Asistence in crisis	0.6	2.2	4.8	43.6	47.8	1.0	3.37	0.74	-1.44	3.17	0.61	0.90	0.55
Intimacy and sexuality	3.2	13.5	12.8	40.4	28.8	1.0	2.78	1.11	-0.78	-0.24	0.38	0.90	0.52
Helpers who really care about	0.0	1.6	2.2	41.7	54.2	0.0	3.49	0.63	-1.22	2.20	0.58	0.90	0.52
Total						0.0	3.18	0.47	-0.79	2.40		0.90	

4=Strongly agree; 3=Agree; 2=Neutral; 1=Disagree; 0=Strongly disagree; M: Mean; SD: Standard deviation; As: Asimetry; k: Kurtosis; α : Alpha if element is eliminated; h²: Comunality

Psychometric evidence of the 'Experience' of the recovery components section

An analysis similar to the one about the importance of recovery components has been conducted with the dimension of recovery 'experience' (Table 3). In this section, each recovery component is defined by three items that have been factored to verify their one-dimensional nature with respect to the component to which they refer. In the 24 situations of recovery experience, a one-dimensional nature has been found. In all cases, factorial loadings were greater than .60 and the internal consistency between the items ranged between .54 and .89. The distribution of responses also presents negative asymmetry, although the average values are somewhat lower than those shown in the 'importance' section: the total average of the 'experience' scale is 2.66 compared to 3.18 of the first. The reliability achieved by the total scale has been .95 and also the CFA offers a satisfactory one-factor solution ($\chi^2_{SB(252)}=713.10$; $p<.001$;

CFI=.958; BB-NFI=.937), although with error distribution rates almost at the adequacy limit (RMSEA=.077; IC90%=.070 to .084). However, in this case, all factorial loadings are significant and higher than .30, and only item 17E ($\lambda=.33$) shows a loading under .40.

Psychometric evidence of the 'Organizational Climate' of REE section

In relation to section III, organizational climate, the average score obtained for the total subscale is 2.89 (SD=0.64) for a range between 0 and 4, where the asymmetry is negative. Reliability reaches 0.92, with item-full scale correlations over .50 and commonalities over 45. Likewise, adequate adjustment indexes are observed in the CFA ($\chi^2_{SB(147)}=215.83$; $p<.001$; CFI=.981; BB-NFI=.945; RMSEA=.029), which ratify the one-dimensional nature of the construct.

Table 3	Decriptive statistics and measures of central tendency of the items that indicate the experience of recovery component of the REE measure														
	Scores						Miss	M	SD	As	k	r	α	h ²	F
	0	1	2	3	4										
Positive sense of identity	1	1.6	4.2	11.5	50.6	32.1	0.0	3.07	0.86	-1.14	1.76	0.55	0.58	0.66	0.81
	2	0.3	5.4	8.0	48.4	37.8	0.0	3.18	0.82	-1.08	1.20	0.47	0.68	0.55	0.75
	3	1.6	7.4	11.5	51.3	28.2	0.0	2.97	0.92	-1.03	1.02	0.56	0.57	0.67	0.82
	Tot						0.0	3.07	0.69	-0.71	0.67		0.71		
A sense of meaning in life	1	0.0	6.7	13.8	52.6	26.6	0.3	2.99	0.82	-0.72	0.26	0.59	0.73	0.67	0.82
	2	0.3	4.2	9.9	55.4	30.1	0.0	3.11	0.77	-0.92	1.33	0.63	0.70	0.70	0.84
	3	1.0	8.3	10.9	51.9	27.2	0.6	2.97	0.90	-0.96	0.76	0.64	0.68	0.72	0.85
	Tot						0.0	3.02	0.69	-0.67	0.74		0.78		
Hope	1	1.6	3.8	26.9	42.3	25	0.3	2.86	0.90	-0.58	0.32	0.53	0.42	0.67	0.82
	2	0.6	6.1	9.3	51	32.4	0.6	3.09	0.85	-1.04	1.18	0.35	0.65	0.45	0.67
	3	4.5	20.2	25	34.6	15.1	0.3	2.35	1.10	-0.26	-0.79	0.47	0.50	0.62	0.79
	Tot						0.0	2.77	0.72	-0.28	0.02		0.63		
Up-to-date knowledge	1	0.6	10.3	12.8	49.7	26.6	0.0	2.91	0.93	-0.81	0.16	0.54	0.76	0.61	0.78
	2	1.3	17.3	20.5	40.1	19.2	1.6	2.60	1.03	-0.39	-0.75	0.66	0.62	0.75	0.87
	3	0.6	17.3	15.1	47.8	18.9	0.3	2.67	0.99	-0.53	-0.62	0.61	0.68	0.69	0.83
							0.0	2.73	0.81	-0.38	-0.45		0.77		

Table 3	Continuation														
	Scores							M	SD	As	k	r	α	h ²	F
	0	1	2	3	4	Miss									
Self-manage symptoms/avoid relapse	1	0.3	8.3	10.3	51.3	29.8	0.0	3.02	0.88	-0.91	0.53	0.58	0.73	0.65	0.81
	2	0.6	11.2	14.1	51.6	22.4	0.0	2.84	0.92	-0.74	0.06	0.63	0.69	0.71	0.84
	3	1.9	10.9	16.0	46.2	24.7	0.3	2.81	0.99	-0.77	0.06	0.62	0.68	0.70	0.84
	Tot						0.0	2.89	0.77	-0.66	0.46		0.77		
Improving general health and wellness	1	1.6	3.8	6.7	54.8	32.7	0.3	3.14	0.82	-1.37	2.86	0.59	0.60	0.70	0.84
	2	2.2	4.8	9.9	51.3	31.4	0.3	3.05	0.90	-1.25	1.93	0.58	0.60	0.70	0.83
	3	3.2	14.7	15.7	42.3	23.7	0.3	2.69	1.09	-0.66	-0.38	0.50	0.72	0.59	0.76
	Tot						0.0	2.96	0.76	-1.04	2.16		0.73		
Being active and directing recovery	1	1.0	7.4	14.4	56.1	21.2	0.0	2.89	0.85	-0.88	0.88	0.53	0.42	0.69	0.83
	2	1.6	7.4	12.5	51.6	26.3	0.6	2.94	0.91	-0.99	0.96	0.45	0.51	0.62	0.79
	3	6.7	23.1	17.9	35.3	16.3	0.6	2.32	1.19	-0.29	-0.98	0.37	0.67	0.46	0.68
	Tot						0.0	2.72	0.75	-0.50	0.38		0.62		
Having rights respected and upheld	1	1.9	14.1	16.7	46.8	19.9	0.6	2.69	1.01	-0.64	-0.26	0.60	0.59	0.70	0.84
	2	1.9	13.1	33.7	35.3	16.0	0.0	2.50	0.98	-0.23	-0.46	0.52	0.69	0.60	0.78
	3	2.6	4.5	16.7	53.8	22.4	0.0	2.89	0.89	-1.05	1.55	0.56	0.65	0.65	0.81
	Tot						0.0	2.69	0.78	-0.55	0.54		0.73		
Mutual self-help and peer support	1	3.2	8.3	19.9	46.5	21.5	0.6	2.75	0.99	-0.81	0.39	0.43	0.67	0.54	0.73
	2	2.2	9.6	26.0	44.9	16.7	0.6	2.65	0.95	-0.57	0.07	0.63	0.42	0.75	0.87
	3	4.5	20.2	25.6	34.6	14.7	0.3	2.35	1.10	-0.26	-0.76	0.45	0.66	0.56	0.75
	Tot						0.0	2.58	0.80	-0.46	0.85		0.68		
Being involved in meaningful activities	1	1.3	8.7	10.3	50.3	29.5	0.0	2.98	0.93	-1.01	0.77	0.58	0.67	0.67	0.82
	2	2.9	11.2	24.7	44.9	15.7	0.6	2.60	0.98	-0.60	-0.02	0.52	0.74	0.59	0.77
	3	2.9	9.6	15.1	45.3	27.2	0.0	2.84	1.02	-0.88	0.30	0.65	0.58	0.74	0.86
	Tot						0.0	2.81	0.79	-0.77	0.96		0.75		
Being involved and part of the community	1	3.5	6.7	17.6	47.1	25.0	0.0	2.83	0.99	-0.95	0.72	0.57	0.55	0.70	0.84
	2	4.5	12.2	18.9	44.2	19.2	1.0	2.62	1.07	-0.70	-0.12	0.61	0.49	0.74	0.86
	3	3.2	11.9	9.9	43.9	29.8	1.3	2.86	1.08	-0.94	0.16	0.39	0.76	0.45	0.67
	Tot						0.0	2.77	0.83	-0.64	0.36		0.70		
Having positive relationships	1	3.2	16.7	20.5	36.9	22.8	0.0	2.59	1.11	-0.46	-0.68	0.52	0.63	0.62	0.79
	2	2.6	10.9	10.9	46.5	29.5	0.0	2.90	1.03	-0.97	0.39	0.52	0.63	0.62	0.79
	3	5.1	22.4	20.8	32.1	19.6	0.0	2.38	1.18	-0.25	-0.98	0.55	0.59	0.66	0.82
							0.0	2.63	0.88	-0.41	-0.03		0.71		

Table 3	Continuation														
	Scores							M	SD	As	k	r	α	h ²	F
	0	1	2	3	4	Miss									
Identifying and building on strengths	1	1.9	6.1	13.1	50	28.8	0.0	2.98	0.92	-1.04	1.16	0.62	0.73	0.69	0.83
	2	2.9	7.4	14.4	49.7	25.6	0.0	2.88	0.97	-1.00	0.87	0.66	0.69	0.73	0.86
	3	2.6	16.7	17.9	41.0	21.8	0.0	2.63	1.08	-0.52	-0.60	0.63	0.72	0.70	0.84
	Tot						0.0	2.83	0.83	-0.80	0.96		0.79		
Developing new skills	1	1.0	10.6	13.5	51.3	23.7	0.0	2.86	0.93	-0.81	0.24	0.64	0.74	0.72	0.85
	2	1.9	10.6	18.6	47.4	21.5	0.0	2.76	0.97	-0.71	0.08	0.74	0.63	0.81	0.90
	3	4.2	20.2	18.6	40.1	16.7	0.3	2.45	1.12	-0.41	-0.77	0.58	0.81	0.64	0.80
	Tot						0.0	2.69	0.85	-0.57	0.24		0.80		
Having basic need met	1	5.4	19.9	15.1	34.9	24.7	0.0	2.54	1.21	-0.46	-0.89	0.54	0.41	0.68	0.83
	2	9.6	26.6	27.9	23.7	12.2	0.0	2.02	1.17	0.05	-0.89	0.49	0.49	0.61	0.78
	3	0.6	3.8	8.3	51.0	35.9	0.3	3.18	0.79	-1.12	1.82	0.37	0.65	0.46	0.68
	Tot						0.0	2.58	0.82	-0.24	-0.01		0.64		
Having sense of control/empowered	1	2.2	5.4	7.4	51.0	33.7	0.3	3.09	0.91	-1.34	2.07	0.52	0.42	0.72	0.85
	2	2.9	7.4	17.0	48.4	24.4	0.0	2.84	0.97	-0.92	0.69	0.53	0.39	0.73	0.86
	3	2.9	12.5	12.5	45.8	25.6	0.6	2.79	1.05	-0.83	0.02	0.29	0.75	0.32	0.57
	Tot						0.0	2.91	0.74	-0.68	0.99		0.63		
Spirituality	1	17.0	42.0	23.7	10.9	6.4	0.0	1.48	1.09	0.66	-0.15	0.77	0.86	0.80	0.90
	2	17.3	44.9	22.1	12.2	3.2	0.3	1.39	1.01	0.62	-0.11	0.79	0.84	0.82	0.91
	3	22.1	46.5	16.0	11.2	3.5	0.6	1.27	1.04	0.81	0.11	0.80	0.83	0.83	0.91
	Tot						0.0	1.38	0.95	0.68	0.16		0.89		
Taking on/succeeding in social roles	1	6.7	31.1	21.8	26.6	13.5	0.3	2.09	1.18	0.08	-1.05	0.68	0.72	0.75	0.86
	2	4.5	30.8	20.2	31.1	13.5	0.0	2.18	1.14	0.00	-1.10	0.71	0.68	0.78	0.88
	3	8.0	32.4	25.3	24.0	10.3	0.0	1.96	1.14	0.17	-0.90	0.59	0.81	0.65	0.80
	Tot						0.0	2.08	0.98	0.07	-0.72		0.81		
Challenging stigma and discrimination	1	6.1	18.3	9.9	44.2	21.5	0.0	2.57	1.19	-0.65	-0.62	0.51	0.56	0.64	0.80
	2	5.1	17.9	17.9	43.3	16.0	0.3	2.48	1.11	-0.55	-0.55	0.61	0.41	0.75	0.86
	3	2.2	10.6	17.0	46.8	23.1	0.3	2.78	0.99	-0.77	0.13	0.36	0.73	0.43	0.66
	Tot						0.0	2.61	0.85	-0.47	0.12		0.68		
Taking on new challenges	1	2.2	13.1	11.2	47.8	25.6	0.0	2.81	1.03	-0.84	0.03	0.63	0.72	0.70	0.84
	2	2.6	9.9	15.1	48.7	23.4	0.3	2.81	0.99	-0.87	0.37	0.60	0.74	0.68	0.82
	3	2.2	7.7	8.7	55.4	25.3	0.6	2.95	0.92	-1.18	1.44	0.67	0.68	0.74	0.86
							0.0	2.86	0.83	-0.76	0.84		0.79		

Table 3	Continuation		Scores													
			0	1	2	3	4	Miss	M	SD	As	k	r	α	h ²	F
Having positive role models	1	1.3	4.2	16.0	49.4	29.2	0.0	3.01	0.86	-0.91	1.08	0.26	0.57	0.36	0.60	
	2	7.1	33.0	28.5	22.4	8.7	0.3	1.93	1.09	0.22	-0.75	0.39	0.39	0.57	0.76	
	3	7.1	29.2	27.2	25.3	10.9	0.3	2.04	1.13	0.09	-0.87	0.43	0.30	0.64	0.80	
	Tot						0.0	2.32	0.74	0.17	0.13		0.54			
Asistence in crisis	1	6.1	6.1	11.2	44.6	37.5	0.3	3.13	0.86	-0.95	0.58	0.59	0.63	0.70	0.84	
	2	6.4	6.4	11.2	48.4	33	0.0	3.06	0.89	-1.01	0.96	0.64	0.57	0.75	0.87	
	3	10.9	10.9	15.7	42.3	27.9	0.3	2.82	1.05	-0.80	0.01	0.49	0.77	0.55	0.74	
	Tot						0.0	3.00	0.76	-0.77	1.05		0.74			
Intimacy and sexuality	1	15.7	37.2	22.4	15.7	8.0	1.0	1.63	1.17	0.46	-0.64	0.57	0.75	0.64	0.80	
	2	12.2	26.9	26.9	24.0	10.3	0.6	1.95	1.18	0.06	-0.90	0.65	0.66	0.73	0.86	
	3	12.2	37.8	20.8	17.6	10.3	0.6	1.77	1.20	0.40	-0.83	0.62	0.69	0.70	0.84	
	Tot						0.6	1.78	0.98	0.16	-0.20		0.78			
Helpers who really care about	1	1.0	1.0	3.5	52.6	41.7	0.3	3.33	0.68	-1.45	4.80	0.66	0.74	0.73	0.85	
	2	1.6	6.1	7.4	51.6	32.7	0.6	3.08	0.89	-1.25	1.82	0.62	0.79	0.68	0.82	
	3	1.3	2.2	5.4	51.6	39.1	0.3	3.25	0.77	-1.46	3.67	0.72	0.67	0.79	0.89	
	Tot						0.3	3.22	0.66	-1.23	3.76		0.81			
Total Experience						0.0	2.66	0.56	-0.41	0.99		0.95				

4=Strongly agree; 3=Agree; 2=Neutral; 1=Disagree; 0=Strongly disagree; M: Mean; SD: Standard deviation; As: Asimetry; k: Kurtosis; α: Alpha if element is eliminated and and for the totals of each element the obtained Cronbach alpha is reported; h²: Comunalitty; F: Factor loadings

Psychometric evidence from the 'Recovery Markers' of the REE section

The response pattern in the analyses of 'recovery markers' (Table 4) is similar: negative asymmetry within normal limits (only two items presented $As < 1.25$), item-full scale correlations above .30 (only item 6 [$r = .17$] and 8 [$r = .25$] have lower values), in all cases with communalities greater than .35, and the withdrawal of none of the items can improve the overall reliability of the scale ($\alpha = .93$). The CFA has adequate adjustment indexes ($\chi^2_{(252)} = 350.93$; $p < .001$; CFI = .981; BB-NFI = .931; RMSEA = .044) that ratify the one-dimensional nature of the construct, although it has been observed that two items show factor weights below .25 (items 6 and 8), which could be eliminated to obtain a better adjustment.

Psychometric evidence of concurrent validity

Table 5 shows the correlations between the indicators of the REE sections, as well as the correlations between the

above mentioned and other indicators of severity, functionality and quality of life included in the evaluation protocol. The four REE indicators have a positive and statistically significant association with each other ($r > .40$), although the association between importance and experience ($r = .56$) has a greater effect, as well as the association between the latter and the organizational climate ($r = .85$). The dimension of 'recovery markers' is associated in a statistically significant way with the indicators of clinical assessment in the expected direction: positively with functionality (GAF $r = .30$) and quality of life (EuroQoL $r = .43$), and negatively with the severity indicators (CGI and HoNOS: r values between $-.16$ and $-.41$), except in the case of the HoNOS deterioration dimension, in which the association is not significant.

DISCUSSION

There is evidence of the validity of instruments for assessing the levels of care required for people with SMI³⁰, but

Table 4	Descriptive statistics and measures of central tendency of the items that indicate Recovery Markers of the REE measure													
	Items	Scores					Miss	M	SD	As	k	r	α	h ²
0		1	2	3	4									
My living situation is safe and feels like home	5.4	14.7	11.5	44.6	23.7	0.0	2.66	1.15	-0.77	-0.31	0.64	0.93	0.66	
Trusted people who I can turn to for help	1.9	6.7	2.6	51.9	36.5	0.3	3.15	0.90	-1.48	2.44	0.56	0.93	0.65	
At least one close mutual relationship	4.5	14.4	7.1	45.2	28.5	0.3	2.79	1.14	-0.91	-0.09	0.44	0.93	0.57	
Involved in meaningful activities	4.2	23.4	13.5	36.9	21.8	0.3	2.49	1.19	-0.38	-1.01	0.57	0.93	0.62	
Symptoms are under control	4.5	12.5	11.9	48.4	22.8	0.0	2.72	1.09	-0.88	0.08	0.53	0.93	0.48	
Enough income to meet needs	7.7	22.1	12.2	38.8	19.2	0.0	2.40	1.24	-0.42	-0.98	0.31	0.93	0.36	
Not working, but see myself working withing 6 months	20.5	43.6	21.2	9.9	3.2	1.6	1.31	1.02	0.70	0.06	0.17	0.93	0.72	
Learning new things important to me	2.6	17.0	13.1	43.6	23.4	0.3	2.68	1.09	-0.63	-0.52	0.52	0.93	0.57	
Good physical health	5.8	19.2	14.1	43.9	17.0	0.0	2.47	1.15	-0.55	-0.68	0.52	0.93	0.51	
Positive spiritual life/connection	15.7	22.4	13.5	32.4	15.4	0.6	2.09	1.34	-0.18	-1.25	0.25	0.93	0.84	
I like and respect myself	4.8	7.7	12.8	51.9	22.8	0.0	2.80	1.03	-1.09	0.88	0.67	0.93	0.55	
Using personal strengths, skills or talents	1.6	8.7	10.6	54.5	24.7	0.0	2.92	0.97	-1.03	0.97	0.64	0.93	0.55	
Having goals, I am working to achieve	4.5	20.2	10.3	42.0	22.8	0.3	2.59	1.17	-0.58	-0.76	0.61	0.93	0.54	
Reasons to get out of bed	3.5	6.1	8.3	50.3	31.7	0.0	3.01	0.98	-1.30	1.66	0.64	0.93	0.55	
More good days than bad	3.5	9.9	12.5	49.4	24.7	0.0	2.82	1.03	-0.97	0.49	0.67	0.93	0.67	
Decent quality of life	4.8	10.9	11.2	51.9	21.2	0.0	2.74	1.06	-0.99	0.41	0.66	0.93	0.68	
Control the decisions in life	5.1	8.0	15.1	50.0	21.5	0.3	2.75	1.05	-1.00	0.63	0.67	0.93	0.63	
Contribute to the community	4.5	13.8	15.7	41.0	25.0	0.0	2.68	1.13	-0.70	-0.33	0.76	0.93	0.71	
Growing as a person	2.9	8.0	10.6	51.9	26.6	0.0	2.91	0.97	-1.11	1.07	0.76	0.93	0.68	
A sense of belonging	3.8	7.4	8.7	53.2	26.9	0.0	2.92	1.00	-1.23	1.35	0.75	0.93	0.69	
Feeling alert and alive	1.9	9.0	9.6	47.8	31.7	0.0	2.98	0.97	-1.06	0.77	0.72	0.93	0.65	
Feeling hopeful about the future	4.2	10.9	16.7	42.3	26.0	0.0	2.75	1.09	-0.80	-0.02	0.73	0.93	0.71	
Being able to deal with stress	4.5	9.3	13.1	51.0	22.1	0.0	2.77	1.04	-1.00	0.58	0.71	0.93	0.72	
I believe I can make positive changes in life	1.9	8.0	9.3	52.9	27.6	0.3	2.96	0.93	-1.13	1.18	0.63	0.93	0.60	
Total							2.68	0.66	-0.85	1.33		0.93		

4=Strongly agree; 3=Agree; 2=Neutral; 1=Disagree; 0=Strongly disagree; M: Mean; SD: Standard deviation; As: Asimetry; k: Kurtosis; α: Alpha if element is eliminated; h2: Comunalitiy

evidence of specific instruments for assessing the concept of 'Recovery' is scarce⁸. The present study provides evidence of the psychometric suitability of the Spanish REE adaptation, which would be the first instrument in Spanish that com-

prehensively assesses recovery, both at a personal level and regarding the orientation of services.

All subscales of the instrument show a negative asymmetric distribution, meaning that users value recovery posi-

Table 5		Correlations (Concurrent and discriminant)			
		REE			
		Importance of recovery elements and programs	Experience of recovery elements and programs	Organizational Climate	Recovery Markers
GAF		0.08	0.13*	0.10	0.30**
CGI		-0.05	-0.05	-0.02	-0.25**
EuroQol		0.01	0.11	0.05	0.43**
HoNOS					
	Behavioural Problems	0.01	-0.05	-0.07	-0.16**
	Deterioration	-0.13*	-0.06	-0.06	-0.07
	Clinical Problems	0.01	-0.09	-0.07	-0.41**
	Social Problems	0.03	-0.08	-0.10	-0.27**
	Total	-0.02	-0.11	-0.11	-0.36**
REE					
	Importance	1			
	Experience	0.56**	1		
	Organizational Climate	0.43**	0.85**	1	
	Recovery Markers	0.41**	0.48**	0.41**	1

*<0.05; **<0.001

tively. This could be due to a desirability bias in the response, or to the fact that most of the participating users are precisely going through this recovery process. Given the characteristics of the sample -mostly people with a long evolution of the disease and who have been in treatment for a long time-, and the supervision in the sample collection, it is considered that the second option could be the most successful. This trend has also been found in other studies such as Kochen's³¹, in which the instrument has been used for evaluating the recovery of users in a supervised apartment program or when it was used by Corlett and Miles in a study that examines the implementation of the recovery model in a safe forensic service³².

The four scales of REE, 'importance of recovery and programs and services that enhance it', 'experience of recovery and programs and services that enhance it', 'organizational climate' and 'recovery markers' reach internal consistency values higher than .90. Reliability analyses based on the internal consistency of the items that are found in the original study¹⁰ were also similar and higher than .90. All evidence found in the factor analyses point to the existence of a one-dimensionality nature in each one of the constructs as-

sessed in each section. This would allow generating total scores for each dimension as a synthesis of the information, as well as generating criteria for the evaluation of results, processes or programs of the health system.

Of the four sections that REE offers, two could be considered for the context of clinical care evaluation (recovery markers and organizational climate), while the other two (importance and experience) are related to a more conceptual component of the model. There is a high correlation between the indicator of recovery markers and the criteria of severity of the disease, functionality and quality of life: the people who get the highest score in recovery are those with the least severity and they are the ones who perceive functionality and quality of life the most. Therefore, REE becomes an appropriate clinical evolution index to assess recovery. In fact, this REE subscale has been used independently as the Recovery Markers Questionnaire (RMQ) for the evaluation of the individual recovery process³³. Besides, the attribution of experience provided to each recovery component constitutes a reference when assessing the recovery paradigm, so they would be key dimensions in the conceptual investigation of the construct. The calculation of the dif-

ference between the experience obtained and the importance attributed is of special interest and it provides an index that can be interpreted as the gap between the services and the expectations of its users.

Following the proposal of the authors of REE¹⁰, the simple addition of the items of each scale divided by the number of items has been used in this study, in order to maintain the same range of responses that was used in its original format. However, it would be desirable to obtain homogeneous scores that would allow an easier reading in the practical field, such as a decimal scale. For the evaluation of individual cases, the development of normative punctuations would also be advisable, since it would be useful for clinical decision making. In this sense, decision criteria could be developed according to the establishment of cut-off points or methodologies based on estimators of clinically significant change³⁴.

Among the limitations of the study is that of its extension for the description of all its psychometric characteristics, an aspect that should be developed in future communications. An example is the capacity of REE to distinguish different moments of the recovery process or to differentiate between different specific resources destined to the recovery process. It would also be desirable to know the constancy of short-term measurement (retest reliability) or sensitivity to change.

The process of sampling and data collection guarantees representativeness and it is consistent with the model itself, since the interviewers have been users of mental health services and have personal experience in the process of recovery. This brings quality and coherence to the study, as well as greater understanding and confidence to share experiences³⁵.

The results obtained in this study demonstrate the adequacy of the REE psychometric evidence. The scarcity of instruments for evaluating the recovery model in our environment makes REE an interesting instrument for obtaining information and indicators that are capable of guiding processes of organizational change. It also makes REE an instrument of interest for evaluating the recovery process of service users.

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CONFLICT OF INTEREST

None.

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