Measuring stages of recovery from psychosis

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Abstract

Background: Mental health consumers invite us to abandon the pathology model, which is tied to pessimism, and instead to embrace a model of personal recovery that goes beyond being free from symptoms, and involves self-management of the illness. The Stages of Recovery Instrument (STORI) is a measure developed from the perspective of consumers according to a conceptual five-stage model of recovery.
Aims: The main aim of this work was to study the psychometric properties of the STORI, but we also set out to compare the stages of recovery in our sample with the five-stage model in the sample with which the scale was developed.
Methods: Our sample consisted of 95 people diagnosed with schizophrenia-spectrum psychoses, with a mean age of 34.74 (SD = 9.25).
Results: The STORI scores showed adequate psychometric properties in this sample. Cluster analysis indicated that the three-cluster model fitted the data better than the five-cluster model. Internal consistency of the STORI scores ranged between .83 and .87. STORI stages were associated with Recovery Styles Questionnaire scores.
Discussion: The results provide empirical validation of the STORI in other countries. Empirical evidence revealed that the stages of recovery found in our own and other clinical samples differ from those found in the samples with which the scale was developed.
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1. Introduction

In the last decade, interest in the concept of recovery from psychosis and in policies related to recovery has increased internationally [1]. Recovery from a psychosis episode can be understood either as an outcome or as a process. When considered as an outcome (also known as *clinical recovery*), it involves a binary (present or absent) concept, which is invariant across people, usually involving a reduction or absence of symptoms and a significant improvement in occupational and social functioning. In contrast, *personal recovery* is a process that individuals go through in order to live a satisfying life. It involves learning to self-manage the illness, regardless of the presence of recurring symptoms, and building a fulfilling life, which varies across individuals.

While criteria for establishing clinical recovery are operational and useful for epidemiological prevalence studies, the concept of personal recovery has emerged from consumer narratives, and entails much more than bringing symptoms under control. Personal recovery mainly refers to the establishment of a meaningful life and a positive sense of identity, founded on hopefulness and self-determination [2].

Diverse assessment instruments have been created to appraise the process of recovery from psychosis [3–5].

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These include (1) the Recovery Assessment Scale (RAS) [6], which consists of 41 items rated on a 5-point Likert scale that are used to form five subscales (personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, and no domination by symptoms); (2) the client version of the Illness Management and Recovery (IMR) Scales [7], consisting of 15 items rated on a 5-point Likert scale with varying anchor descriptions, where a higher total score indicates a greater level of recovery; (3) the integration/sealing over scale (ISOS) [8], an observer-reported measure of recovery style from psychosis made up of 13 items; (4) the Recovery Styles Questionnaire (RSQ) [9], developed as a brief self-report form of the ISOS and consisting of 39 dichotomous items used to measure 13 concepts found to distinguish individuals with an integration recovery style from those with a sealing over-recovery style; and (5) the Mental Health Recovery Measure (MHRM) [10], comprising 30 items, rated on a 5-point Likert scale and grouped in seven subscales (overcoming stuckness, self-empowerment, learning and self-redefinition, basic functioning, overall well-being, new potentials, and advocacy/enrichment). In a recent review, Cavelti et al. [11] found that there are several useful tools for assessing personal recovery with adequate psychometric properties. However, further research on specific measures is needed—for example, research exploring the internal structure of the measures and the internal consistency of the scores.

Although the experience of recovery from psychosis is a process unique to each individual, there are some common factors as regards the psychological process. According to Andresen et al. [2], these common factors involve four key processes: (i) finding and maintaining hope; (ii) taking responsibility for life and well-being; (iii) redefining self and identity; and (iv) finding meaning and purpose in life. These processes take place over five stages of recovery. In the suggested five-stage model, stage 1 (moratorium) is characterized by denial, confusion, hopelessness, deprived sense of one's life, loss of purpose in life, and self-protective withdrawal. Stage 2 (awareness) marks the turning point in the recovery process, with the advent of hope and a sense of personal agency for taking responsibility for recovery and purpose in life. Stage 3 (preparation) provides the foundation for building a meaningful life, taking stock of internal and external resources, and setting new goals. Stage 4 (rebuilding) involves an active pursuit of personal goals, building a more positive sense of self, taking risks in order to take control of one's life, and overcoming failure and setbacks to build resilience in the face of future obstacles. Finally, stage 5 (growth) is the culmination of the effort that has taken place in the preceding stages, seeking personal growth and self-actualization, and is characterized by hopefulness and a positive outlook towards the future.

As a means of identifying a person's current stage of recovery, Andresen, Caputi, and Oades [12] developed the Stages of Recovery Instrument (STORI), and more recently a short form of this instrument [13], utilizing the 30 best-performing items of the original, while retaining the theoretical stages of the model and the elements of recovery important to consumers. An important difference with respect to the aforementioned measures of recovery from psychosis is that both the STORI and its short version (the STORI-30) are based on a sequential model of recovery. Initial testing in Australia provided preliminary evidence of construct validity, with the internal consistency of the stage subscales yielding alpha coefficients ranging from 0.88 to 0.94, and concurrent validity with the Recovery Assessment Scale [6], the Psychological Well-Being Scales [14], the Adult State Hope Scale, the Connor-Davidson Resilience Scale [15] and the Mental Health Inventory [16]. Moreover, the pattern of correlations found among the STORI subscales provided support for the validity of the ordinal stages of the model, the proximal stages being positively correlated; the distal stages showed weak associations, and the most distal stages were negatively correlated [12,17].

Weeks, Slade, and Hayward [18] in the United Kingdom provided further evidence of the concurrent validity of the STORI, finding significant correlations with the Recovery Assessment Scale [6] and a similar pattern of correlations among the stage subscales. Weeks et al. also found satisfactory face validity and feasibility, and preliminary evidence of test–retest reliability. However, while conceptually the five-stage model is the basis for the design of the STORI, empirical evidence from cluster analyses of the instrument's items points to three clusters as the most psychometrically interpretable solution. In the study by Andresen et al. [12], the first cluster comprised stage 1 items; the second cluster consisted of stage 2 and 3 items, as well as four stage 4 items; and the third cluster consisted of the stage 5 items and six stage 4 items. Weeks et al. [18] also found a three-cluster solution for the items of the STORI: the first cluster consisted of 7 items from stage 1; the second cluster contained 23 items (3 from stage 1, 9 from stage 2, 8 from stage 3, and 3 from stage 4); and the third cluster contained 20 items (1 from stage 2, 2 from stage 3, 7 from stage 4, and 10 from stage 5).

Cavelty et al. [11] stress that the assessment of the various stages of recovery is an aspect of the STORI that is not achieved by the RAS or by any of the other measures; however, they also point out that it currently has some weaknesses with regard to construct validity and internal consistency.

Given the current state of this issue and the lack of measurement instruments for assessing recovery styles, there is an emerging need to adapt and validate the STORI for Spanish in a clinical sample, and also to test the supposed five-stage model of recovery; in particular, it will be important to compare the recovery stages in our sample with the five-stage model in the sample with which the scale was developed.

2. Method

2.1. Participants

The sample was made up of 95 patients, 67 (70.5%) of them male, clients of the public mental health system.

Table 1
Sample characteristics and comparisons by gender.

Variables	Males (n = 67)	Females (n = 28)	Total (N = 95)
Age (years), mean (SD), range	34.12 (9.03), 14–52	36.21 (9.74), 19–50	34.74 (9.25), 14–52
$t(93) = -1.007$, $p = .317$			
Education			
Primary school, n (%)	19 (28.4)	8 (28.6)	27 (28.4)
Higher school, n (%)	40 (59.7)	12 (42.9)	52 (54.7)
University studies, n (%)	8 (11.9)	8 (28.6)	16 (16.8)
$\chi^2(3) = 5.43$, $p = .143$			
Years of education, mean (SD)	11.19 (2.38), 8–15	11.89 (2.80), 8–15	11.39 (2.51), 8–15
$t(93) = -1.176$, $p = .243$			
Current employment status			
Employed, n (%)	16 (23.9)	7 (25.0)	23 (24.2)
Not employed, n (%)	51 (76.1)	21 (75.0)	72 (75.8)
$\chi^2(1) = 0.13$, $p = .908$			
DUP[a] (weeks), mean, (SD), range	42.93 (65.91), 1–312	33.96 (88.04), 1–417	40.54 (72.05), 1–417
$t(93) = -0.849$, $p = .398$			
No. of psychotic episodes, mean (SD), range[b]	2.58 (1.78), 1–6	2.93 (1.88), 1–7	2.67 (1.79), 1–7
$t(88) = -0.521$, $p = .604$			
Daily antipsychotic medication (mg haloperidol equivalence), mean (SD), range	11.62 (8.69), 0.94–30.90	6.79 (5.52), 1.00–20.75	10.28 (8.16) 0.94–30.90
$t(41) = 1.78$, $p = .082$			

  [a] Duration of untreated psychosis (DUP) was calculated by means of interviews with patients and families, and medical records.
  [b] In some cases, the number of episodes of psychosis could be higher than 7.

Eligible individuals were those meeting *DSM-IV* criteria for schizophrenia, schizoaffective disorder, delusional disorder or unspecified psychosis (65% of the cases had schizophrenia), diagnosed by the clinical treatment team, and with a history of treatment of at least one psychotic episode, including the current episode. Of these, 87 (91.6%) were Spanish and 8 (7.4%) were immigrants with a good command of Spanish. The clinical and socio-demographic characteristics appear in Table 1, showing no statistically significant differences between men and women. Assignment to the study group was sequentially-based, as admitted to outpatient treatment. Exclusion criteria were the presence of neurological disorder, substance dependence and IQ below 70.

2.2. Measures

The Stages of Recovery Instrument (STORI) [2,12] is a 50-item self-report questionnaire comprising ten groups of items, each group being related to one of the processes of recovery. Each of the five items within a group represents one of the five proposed stages of recovery (moratorium, awareness, preparation, rebuilding, and growth). Items are rated from 0 "not at all true now", to 5 "completely true now", producing a score for each stage ranging from 0 to 50. The respondent is allocated to the stage with the highest score. The instrument has demonstrated adequate psychometric properties (concurrent, construct and face validities and feasibility, test–retest reliability, and internal consistency), according to the above-mentioned studies [12,17].

The translation and adaptation of the instrument were carried out using the back-translation procedure. Following international guidelines [19,20], and those of the Interna-

tional Test Commission [21], the original English version was translated into Spanish by two experts in the subject matter. This version was then translated into English by another researcher familiar with English culture. Finally, the authors of the instrument compared the two English versions: original and translated (see the Spanish version of the STORI at http://socialsciences.uow.edu.au).

The Recovery Styles Questionnaire (RSQ) [9] is a 39-item self-report measure exploring six styles of adaptation to psychosis and recovery: sealing over, tends toward sealing over, mixed picture in which sealing over predominates, mixed picture in which integration predominates, tends towards integration, and integration. The RSQ is based on and is a further development of the Integration/Sealing Over Scale (ISOS) [8]. McGlashan conceptualized the subjective experience of psychosis as a continuum of recovery styles. At one end of the continuum lies "integration," which is exemplified by persons who show an interest in their psychotic experiences and appear eager to discuss and learn more about them and to gain a meaningful perspective on them. At the other end of the continuum is "sealing over," exemplified by persons who have difficulty recalling or describing the phase of acute psychosis, deny the existence and/or severity of their illnesses and expect to return rapidly to normal functioning. Individuals who demonstrate an "integration" style of recovery have been shown to have a better outcome in terms of relapse and social functioning than those using a "sealing over" style. An "integration" recovery style has also been related to fewer feelings of depression and more positive self-evaluations, as compared with a "sealing over" style [9].

The total score range of the RSQ is from 0 to 78; higher scores indicate tendency towards integration. The RSQ has

Table 2
STORI stage scores compared with earlier studies, and RSQ style scores.

	Current study (n = 95)	Weeks et al. (2010) (n = 50)	Andresen et al. (2006) (n = 94)
Stage scores, mean (SD)			
1. Moratorium	16.87 (12.57)	19.9 (10.2)	N/A
2. Awareness	29.88 (10.92)	28.4 (11.3)	N/A
3. Preparation	30.44 (11.51)	28.5 (10.4)	N/A
4. Rebuilding	34.52 (10.27)	32.4 (10.3)	N/A
5. Growth	33.14 (11.87)	31.4 (11.1)	N/A
Stage allocation, n (%)			
1.	13 (13.7)	4 (8)	8 (9)
2.	15 (15.8)	11 (22)	2 (2)
3.	9 (9.5)	5 (10)	5 (5)
4.	25 (26.3)	14 (28)	30 (32)
5.	33 (34.7)	16 (32)	48 (51)
RSQ total score, mean (SD)	61.96 (5.00)		
RSQ style allocation, n (%)			
1. Sealing over	0 (0.0)		
2. Tends toward sealing over	4 (4.2)		
3. Mixed, sealing over predominates	20 (21.1)		
4. Mixed, integration predominates	50 (52.6)		
5. Tends towards integration	19 (20.0)		
6. Integration	2 (2.1)		

also shown adequate psychometric properties, with a test–retest coefficient of 0.81 and a Cronbach's α score of 0.73. A high correlation index was also found between the RSQ and the ISOS ($r = .92$, $p = .001$). A translation and adaptation into Spanish of the RSQ were recently carried out by Nasillo, Santos, Arrugat, and Obiols [22] in 70 clinically stable patients, yielding a Cronbach's α score of 0.62 and $r = .806$ in test–retest reliability.

2.3. Procedure

All the patients, clinically stable, were assessed individually by five expert psychologists and one psychiatrist, in one or two interviews at various mental health centers in the north of Spain, between 2011 and 2012. In addition to the application of the measurement instruments mentioned above, the study had broader objectives, which included obtaining information on the clinical symptomatology present, the degree of mental illness stigma, the impact of the illness on patients' functioning, and the existence of trauma in their personal history.

Written informed consent was obtained from patients aged over 18, or from their parent or guardian if they were under 18. The research protocol was approved by the Oviedo Central Hospital Ethics Committee.

2.4. Data analysis

With the aim of studying the psychometric properties of the STORI scores, the following steps were taken: (1) the descriptive statistics for the STORI were calculated; (2) the internal structure of the STORI subscales was examined using Pearson correlations between scores in each stage of the STORI, as well as a hierarchical cluster analysis. Cluster analysis can be used as an effective method for forming

scales from sets of items [23], and has been used successfully in previous studies on personal recovery structure [2,12]. Cluster analysis using Ward's Method was performed to determine whether the STORI items clustered into groups representing the stages of recovery. This method allows us to investigate whether STORI items cluster into groups mapping onto the hypothetical five stages of recovery. Dendrograms were used to identify the best solution; (3) the reliability of the scores was estimated using Cronbach's alpha; and (4) concurrent validity was studied using Pearson correlations between STORI and RSQ scores, and chi-square analyses were used to test the association between the STORI and the RSQ. Data analyses were carried out using the Statistical Package for the Social Sciences [24] for Windows (v. 15)

3. Results

3.1. Descriptive statistics

Mean scores and standard deviations observed in each of the STORI stages are shown in Table 2. The table also shows the scores obtained by Weeks et al. [18], which coincide closely with the results obtained in the present study. Thus, the Pearson correlation between the means obtained in the recovery stages of the present study and that of Weeks et al. yields a value of .995 ($p < .001$). Table 2 also shows the distribution of the patients in each of the STORI stages, as well as the data obtained by Week et al. [18] and Andresen et al. [12] in their respective studies. The correlation between the percentage of cases present in each one of the recovery stages in this study and that obtained in the study by Weeks et al. attains a value of $r = .917$ ($p < .029$), the correlation between the percentages in the present study and that of Andresen being

Table 3
Correlations between the STORI, RSQ and RAS total scores.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Stage 2	−.01				
Stage 3	−.19	.84*			
Stage 4	−.43*	.64*	.81*		
Stage 5	−.66*	.41*	.61*	.80*	
RSQ current study ($n = 95$)	−.17	.31*	.29*	.26*	.33*
RAS (Weeks et al., 2010)	−.64**	.14	.46**	.67**	.74**
($n = 50$)					
RAS (Andresen et al., 2006)	−.49*	-.03	.05	.30*	.77*
($n = 94$)					

	Cluster 1	Cluster 2	Cluster 3
Cluster 2	−.25*		
Cluster 3	−.66**	.51**	
RSQ	−.16	.39**	.11

RAS: Recovery Assessment Scale.
* $p < .01$.
** $p < .001$.

$r = .966$ ($p < .007$), and that between the percentages for the studies by Weeks et al. and Andresen et al. being $r = .804$ ($p < .100$). Finally, Table 2 shows the mean total score and standard deviation observed in the RSQ, and the distribution of cases in each one of the six recovery styles.

No statistically differences by sex were found in recovery stages (STORI) or styles (RSQ) in this study, but patients with a history of illegal drug use identified strongly with recovery Stage 1 and Stage 2 ($n = 19$), compared to those who never used drugs ($n = 9$) [$\chi^2(4) = 10.88$, $p = .028$].

3.2. Validity evidence based on the internal structure

The correlations obtained between the scores for each of the five STORI stages are shown in Table 3. The pattern of correlations suggests that the stages are sequential, and that the patients classified in stage 1 scarcely identify with those in stage 5; on the other hand, those in the intermediate stages show highly similar characteristics. This raises some doubts about the existence of five clearly differentiated stages.

With the aim of testing the internal structure of the STORI, we carried out a hierarchical cluster analysis. Based on the dendrogram, a three-cluster solution was the clearest result (Fig. 1). Cluster 1 is made up of 10 items, all belonging to stage 1; cluster 2 includes 33 items (10 belonging to stage 2, 10 to stage 3, 8 to stage 4, and 5 to stage 5); and cluster 3 is made up of 7 items (2 belonging to stage 4, and 5 to stage 5) (Table 4).

Internal consistency was studied by computing Cronbach's α for each of the five-stage subscales. Values found were as follows: 0.86 for stage 1, 0.83 for stage 2, 0.86 for stage 3, 0.83 for stage 4, and 0.87 for stage 5.

3.3. Concurrent validity

We calculated the Pearson correlations between the STORI recovery stage subscales, and between each stage
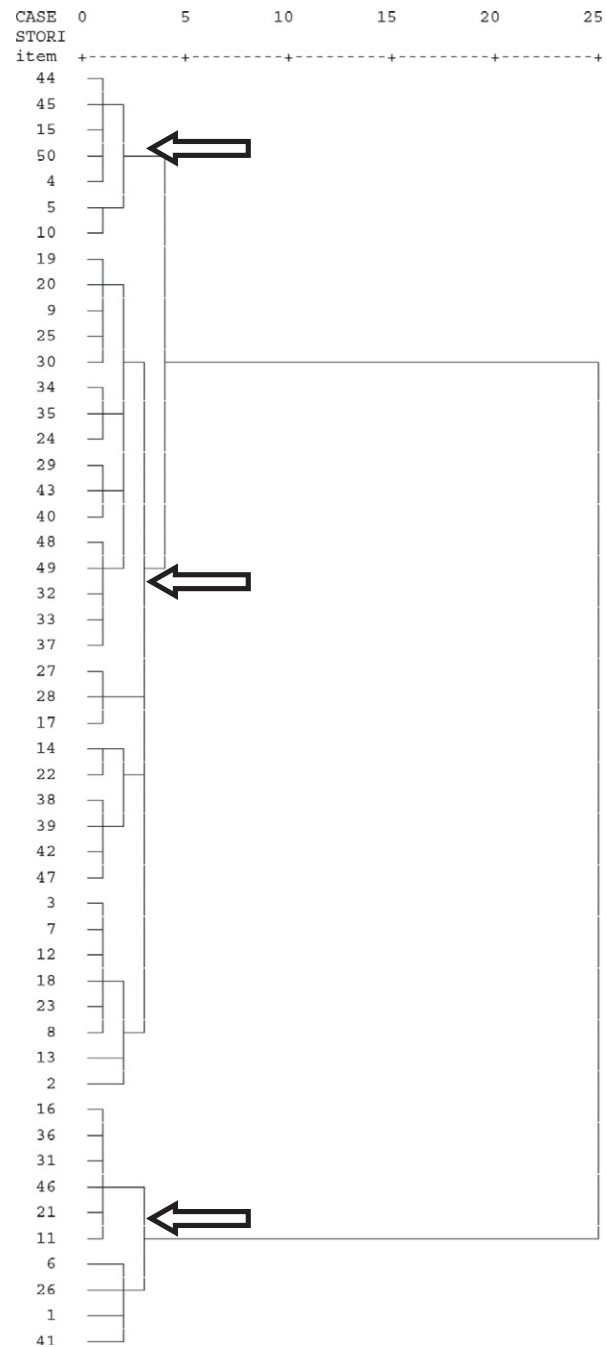

Fig. 1. Dendrogram: three clusters.

and the RSQ total score (Table 3). With the exception of the correlation between stage 1 of the STORI and RSQ score, we observed a statistically significant association between STORI stages and RSQ total score. Nevertheless, such correlations do not show a clear pattern of increasing intensity. For cultural comparison purposes, we have also included the indices obtained by Weeks et al. [18] in the UK and by Andresen et al. [12] in Australia, using the Recovery Assessment Scale. Also included in Table 5 are the correlations obtained between the three clusters, and for cluster and the RSQ.

Table 4
Comparisons between STORI (stages and clusters) and RSQ styles.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
RSQ sealing over, n (%)	8 (61.5)	0 (0)	3 (33.3)	7 (28.0)	6 (18.2)
RSQ integration, n (%)	5 (38.5)	15 (100)	6 (66.6)	18 (72.0)	27 (81.8)
$\chi^2(4) = 15.42$, $p = .004$					

	Cluster 1	Cluster 2	Cluster 3
RSQ sealing over, n (%)	10 (58.8)	3 (9.1)	11 (24.4)
RSQ integration, n (%)	7 (41.2)	30 (90.9)	34 (75.6)
$\chi^2(2) = 14.73$, $p = .001$			

The statistical significance of the chi-squared values indicates independence of the two recovery measures, and confirms a convergence between them. The highest levels of correspondence are observed between the sealing over style of the RSQ and stage 1 of the STORI, between the integration style of the RSQ and stage 5 of the STORI, and between cluster 1 of the STORI and the sealing over style of the RSQ.

In another concurrent validity analysis we grouped the RSQ frequencies into two broad recovery styles, integration vs. sealing over, and carried out chi-squared tests with the five stages and three clusters of the STORI (Table 5), confirming a high level of association or convergence between them.

4. Discussion

People with schizophrenia and their families are often told that the objective of rehabilitation is to achieve clinical stability and the absence of negative events such as hospitalizations or severe inactivity. Actually, however, for some patients recovery in psychosis means something quite different from the remission of symptoms, or even from social functioning. The notion of personal recovery implies coming out of a state in which the experience of the self has deteriorated or become diminished, with a loss of vitality and control over one's life. The development of the experience of the self can represent a greater capacity for managing one's own recovery and, consequently, for achieving new objectives in one's life. The STORI emerges as an instrument whose purpose is to assess the process of recovery, through a series of differentiated stages.

Concerning the frequency of recovery stages and styles, measured with the STORI and RSQ in our sample of patients who have experienced one or more episodes of psychosis, the distribution of cases in each of the five STORI stages showed a significant correlation with those found by Weeks et al. [18] and Andresen et al. [12]. We also found in the RSQ a higher percentage of mixed styles than of extreme categories (sealing over or integration), and this is in accordance with the data obtained by Modestin et al. [25].

Secondly, our study offers evidence on the utility of the STORI, in that its psychometric properties are adequate. The

Table 5
Association of items according to cluster analyses.

STORI items	2 clusters	3 clusters	4 clusters	5 clusters
1	1	1	1	1
2	2	2	2	2
3	2	2	2	2
4	2	3	3	3
5	2	3	3	3
6	1	1	1	1
7	2	2	2	2
8	2	2	2	2
9	2	2	4	4
10	2	3	3	3
11	1	1	1	1
12	2	2	2	2
13	2	2	2	2
14	2	2	2	2
15	2	3	3	3
16	1	1	1	1
17	2	2	2	5
18	2	2	2	2
19	2	2	4	4
20	2	2	4	4
21	1	1	1	1
22	2	2	2	2
23	2	2	2	2
24	2	2	4	4
25	2	2	4	4
26	1	1	1	1
27	2	2	2	5
28	2	2	2	5
29	2	2	4	4
30	2	2	4	4
31	1	1	1	1
32	2	2	4	4
33	2	2	4	4
34	2	2	4	4
35	2	2	4	4
36	1	1	1	1
37	2	2	4	4
38	2	2	2	2
39	2	2	2	2
40	2	2	4	4
41	1	1	1	1
42	2	2	2	2
43	2	2	4	4
44	2	3	3	3
45	2	3	3	3
46	1	1	1	1
47	2	2	2	2
48	2	2	4	4
49	2	2	4	4
50	2	3	3	3

internal consistency values are similar to those obtained by Weeks et al. [18]. The STORI also demonstrated concurrent validity with the RSQ. With regard to its construct validity, the pattern of correlations is very similar to those obtained by Weeks et al. [18] and by Andresen et al. [12], and indicates a sequential process. The correlations between the five recovery stages indicate a negative relation between stage 1 and stages 4 and 5. However, detailed examination of the inter-correlations suggests simplifying the structure of the

process, with the possibility of reducing the number of stages of personal recovery.

Concerning the supposed existence of five stages in personal recovery from psychosis, the results of the cluster analysis indicate that the structure of the STORI can be reduced to three stages, confirming our hypothesis that a different stage-model could be found when samples differ culturally from those with which the scale was developed. There are sharp contrasts between the European and the Australian samples in the stages found. Although different from the findings of Weeks et al. [18] in the UK, our results indicated a similarly highly unequal distribution of the items belonging to each of the clusters. While there is coincidence in cluster 1, which includes all 10 items of stage 1, cluster 2 includes 33 items belonging to stages 3, 4 and 5, and cluster 3 is made up of just 7 items, 2 from stage 4 and 5 from stage 5. However, the correlations obtained between the three clusters are also sequential, which confirms the validity and reliability of the instrument for exploring the three stages of recovery from psychosis.

Concurrent validity was analyzed by comparing the stages of the STORI with the RSQ total score. The sample size precluded a detailed analysis in relation to the six styles of the RSQ, given the absence or small number of cases observed in each of these categories. The results of the correlations showed that the extreme levels of the STORI (stages 1 and 5) are those that give rise to the most marked values: a negative correlation between stage 1 and RSQ total score, and the highest positive correlation between stage 5 and RSQ total score; however, it was not confirmed that the level of the correlations increases progressively as the stages of recovery advance.

More conclusive results were obtained on comparing the stages and clusters of the STORI with the two broad recovery styles (sealing over vs. integration) of the RSQ. The results of the chi-squared tests permit us to reject the hypothesis of independence of the two constructs (both while maintaining the original structure of the five STORI stages, and with the three clusters found in this study) and to confirm, therefore, a correspondence between the STORI and the RSQ, indicating concurrent validity.

Although this study confirms that it is possible to measure recovery, and that recovery reflects the existence of stages in a non-linear process [1], more research is needed for the development of a shorter version of the STORI, adapting it to the three stages also obtained in diverse statistical analyses [10,18,26,27].

No sex differences were found in recovery stages (STORI) or styles (RSQ) in this cross-sectional study; however, since longitudinal studies showed that males experience faster and longer deterioration when psychotic symptoms arise, as compared to females [28–33], different patterns of change in recovery may be observed in larger samples of patients.

In short, the results found in this study indicate that the STORI is a useful measure of recovery from psychosis, offering information on the recovery process not found in other relevant instruments. Also, the psychometric properties of the Spanish version are adequate, indicating that recovery as a concept works in a Spanish context; however, as was also demonstrated in another European study [18], its structure could be simplified, reducing the number of stages of personal recovery.

Some limitations of the present study should be pointed out. From a psychometric point of view it would be appropriate to examine other properties of the instrument, such as test–retest reliability. Furthermore, and via longitudinal designs, it would be useful to observe the changes experienced by patients over time. The small sample size is also a limitation in this study, especially the small number of women.

Finally, important objectives for future research are, on the one hand, the analysis of the relationships between personal recovery and other variables involved in recovery, such as stigma, the functional impact of the illness, or the nature of the patient's symptoms; and on the other, the study of possible predictive factors of recovery. In fact, in a previous study [4] we found that the lowest level of recovery was significantly related to more stigma, more subjective complaints of cognitive deficits, more functional impact of the illness, more negative and depressive symptoms, and more discomfort with such symptoms.

Acknowledgment

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